VOL. XVII, No. 20 CHICAGO, MAY 19, 1910 $3.00 PER YEAR

# MOTOR AGE

## ANALYSIS OF THIS YEAR'S GLIDDEN ROUTE

MAYOR OF DETROIT GREETS GARDHAM

**GLIDDEN ITINERARY**

**Start Tuesday, June 14**
**End Chicago, June 30**
**Cincinnati, O., to Louisville, Ky.**
**Louisville to Nashville, Tenn.**
**Nashville to Sheffield, Ala.**
**Sheffield to Memphis, Tenn.**
**Memphis to Little Rock, Ark.**
**Little Rock to Hot Springs, Ark.**
**Hot Springs to Texarkana, Ark.**
**Texarkana to Dallas, Tex.**
**Dallas to Lawton, Tex.**
**Lawton to Oklahoma City, Okla.**
**Oklahoma City to Wichita, Kan.**
**Wichita to Kansas City, Mo.**
**Kansas City to Omaha, Neb.**
**Omaha to Des Moines, Ia.**
**Des Moines to Davenport, Ia.**
**Davenport to Chicago, Ill.**

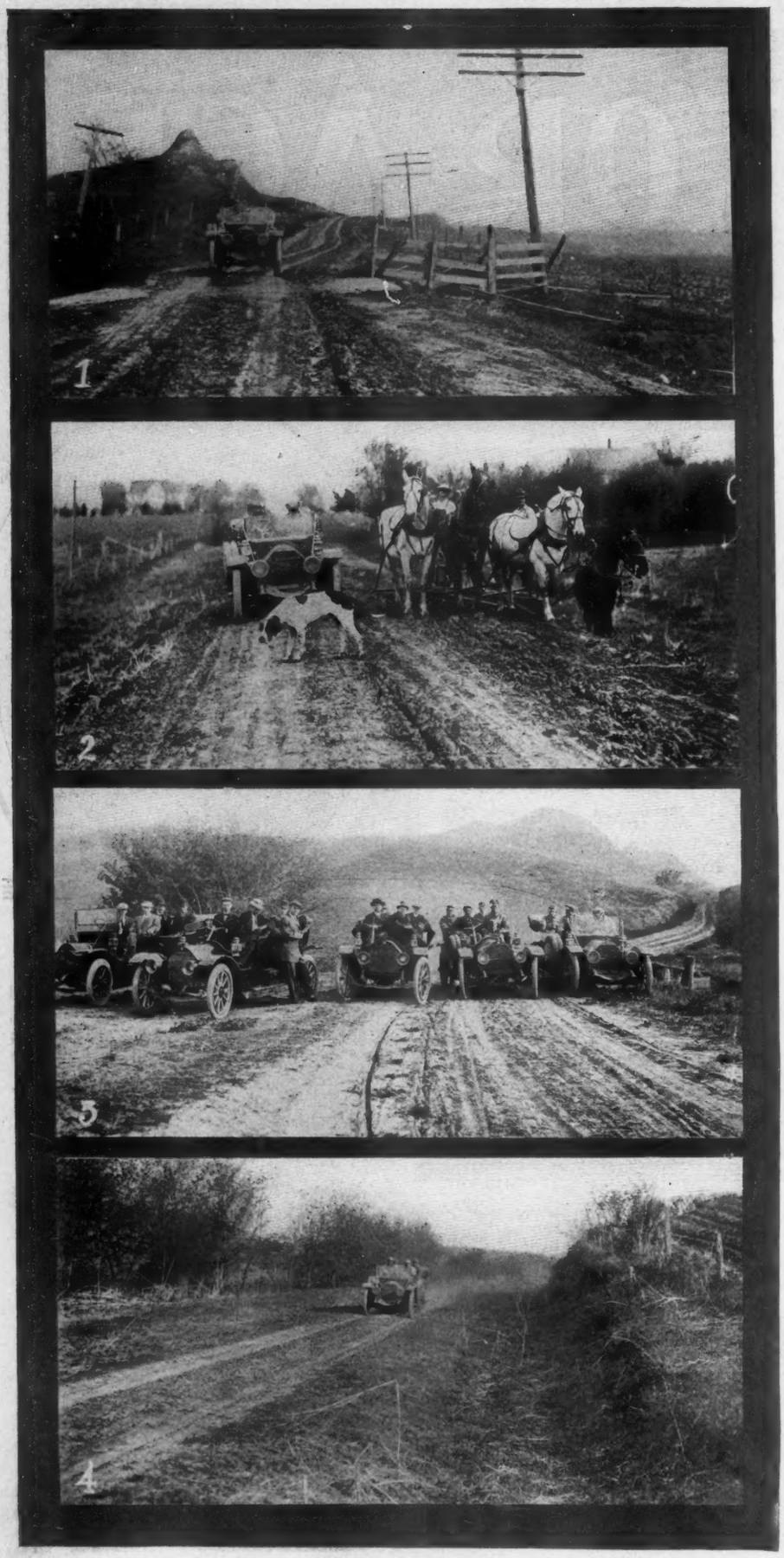
HUGH CHALMERS MEETS LEWIS

CHICAGO, May 16.—Upon the arrival of Dai H. Lewis, official pathfinder of the 1910 Glidden tour, and E. L. Ferguson, special representative of the American Automobile Association, in the Chalmers here on Friday noon, the official laying out of this year's route, which will be the longest in the history of the tour, was completed, the odometers showing a total of 2,851 miles for the touring classic. As Motor Age has been in the habit of presenting an analytic review of the route in previous tours, the same policy is adhered to this season, and in the following paragraphs the general characteristics of the route, as given by Messrs. Lewis and Ferguson, are herewith printed for the general benefit of those manufacturers who have entered this year.

As mentioned in these columns last week, this year's tour embraces territory in thirteen states, seven of which have never before had a Glidden tour within their confines. While thirteen states make a big total, yet the amount of traveling done in Alabama, Ohio, Mississippi and Missouri is so slight as to scarcely merit mention. On the other hand, Kentucky, Tennessee, Arkansas, Oklahoma, Kansas, Iowa and Illinois are crossed from side to side, whereas Texas and Nebraska are invaded to a slight extent. The average length of each day's run for this year is 198 miles, as compared with 178 last season. Although each daily trip this year will practically be 1 hour longer than last year, yet the pace will remain the same, namely, 20 miles per hour for the large cars, 18 for cars listing from $800 to $1,600, and 16 miles an hour for those selling below $800. In spite of this high daily mileage, there are only 5 days on which the schedule exceeds the 200-mile mark, and these trips are over the good-road territory beginning with Texarkana and ending at Davenport, the routes being: Texarkana to Dallas, 217 miles; Dallas to Lawton, 200 miles; Oklahoma to Wichita, 216 miles; Wichita to Kansas City, 234 miles; Kansas City to Omaha, 242 miles, and Des Moines to Davenport, 219 miles.

In contrast with these long runs are several short ones,

ARRIVAL OF THE PATHFINDER IN CHICAGO



1—Traveling Among the Sand Hills Into Omaha
2—Passing a Drag Working on Roads Near Randolph, Iowa
3—Meeting of Omaha Motorists and Pathfinder, Glenwood, Iowa
4—The Pathfinder Hitting It Up Through Western Iowa

namely, Cincinnati to Louisville, 162 miles; Nashville to Sheffield, 119 miles; Hot Springs to Texarkana, 131 miles, and a Sunday morning run of 60 miles from Little Rock to Hot Springs. Ferguson, who made a careful comparison of the route with that of last year, asserts that it will be an easier one on cars in that there is not that long stretch of trail over the plains which was encountered last year through western Nebraska, Colorado, and western Kansas. There are, however, several physical conditions different from those experienced in any previous tours. One of the most noteworthy of these is the creek situation encountered in the Nashville vicinity, and also in the region of Hot Springs. Before entering Nashville, and after leaving the city, the roadway is crossed by a series of unbridged creeks, which in dry weather never are more than 3 or 4 inches deep, but only after rain of a day or a day and a half. The first creek is found 50 miles north of Nashville, and in all there are from forty to fifty of these within a radius of 50 miles of the city on the route traversed. Should a heavy rain precede the arrival of the cars in this district it will mean a delay of, perhaps, a day before the creeks subside, because by actual measurement it was noticed that they fall at a rate of 3 inches to the hour. These creeks are from 3 to 8 miles apart. The bottoms are soft soil. The creeks in Hot Springs and vicinity are considerably different. These streams range from 2 to 10 feet in width and have clear water with gravel beds. They are close together, many of them not being ⅓ mile apart. Authorities in Hot Springs and Little Rock are arranging to bridge a lot of these. The Hot Springs Motor Club has raised $1,000 for the work, and has influenced Little Rock and other clubs to donate $1,500 for the work, so that by the time the tour passes through there culverts will bridge many of these thirty streams.

**The Ferry Situation**

Another particular novelty that will be encountered this year is the ferry situation, as on three occasions the contesting cars will have to be ferried across large rivers. The first ferry is at Helena on the Mississippi river. The river at this point is very wide, and the cars will be transported on large flat-top lumber barges, which barges are 150 feet long and 30 feet wide, offering accommodation for thirty cars on each. These barges will be moored on the east bank of the river, and after all of the cars in the tour are loaded they will all be transported across the river together. At this point the levee, or artificial bank on the east side of the Mississippi, is 15 feet high, and the Helena authorities will have openings cut through, so that no difficulty will be encountered in loading the cars.

The second ferry is at Clarendon, Ark., where the White river is crossed. This is the scene of the famous pearl fisheries. The

river is but ¼ mile wide, and at present the only crossing facility is a ferry which will carry three cars. The Helena people are coming to the rescue, and expect to float one or two of the large lumber barges from Helena down the Mississippi and up the White river, a distance of 200 miles, so that the ferry problem at Clarendon will be favorably solved.

The third ferry is at Fulton, Ark., where the Red river is crossed. Fulton is but 20 miles out of Texarkana. As the river is but ¼ mile wide, the one ferry, with accommodation for six cars, will prove adequate, as it requires but 4 minutes to make a round trip of the ferry.

A third physical condition new to Glidden tourists will be encountered on the run from Sheffield to Memphis. On 60 miles of this trip the road leads through a continuous forest, and the drivers will constantly have to be winding in and out among stumps, many of which are high enough to catch the flywheel or axle, if the drivers do not exercise the greatest care. Another stump section will be encountered south of Hot Springs for a few miles, but the distance is so short as not to be a factor in the contest.

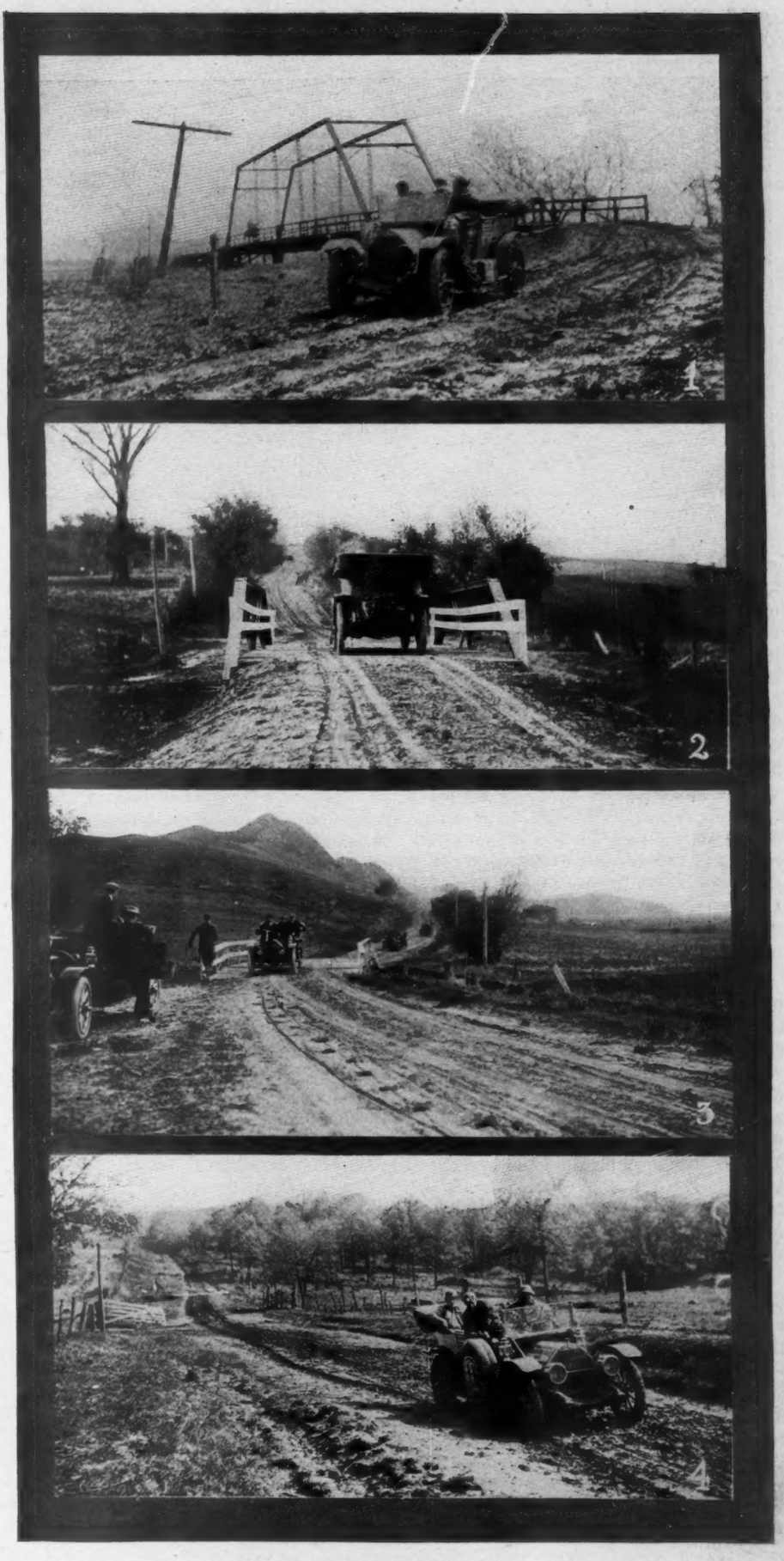
**Review of Road Conditions**

In a progressive review of the general road conditions, beginning with Kentucky, it is sufficient to say that all of the roads in this state are macadam or pike, as the natives term them, and the run across the state can be made on schedule, whether rain or shine. It was expected that the trip across Kentucky would embrace the famous Blue Grass country, but only the margin of it is touched upon, and that in the Louisville vicinity, which is a night stop for the first day. A 90-mile circuit through the heart of this Blue Grass territory was contemplated, but it was eliminated.

The run across Tennessee will not prove so pleasant a trip, the creeks already spoken of being one of the conditions. In this creek territory, however, the roads are of gravel, and there will be no trouble in maintaining schedules. Nashville has to date proven rather lukewarm on the improvement of roads, but it is hoped that in the next month some enterprise will be shown. It is impossible to predict what the nature of these roads will be in June, because there had been a cloudburst when the pathfinder passed through, and the car was delayed more than a day in some places. Generally speaking, the Tennessee roads are not comparable with those in Kentucky. South of Nashville and extending nearly to Columbia is a particularly bad stretch, and between Columbia and Sheffield a second bad stretch will be met.

The fourth day of the tour, from Sheffield to Memphis, will offer some difficulties through the wooded territory, but the last

(Continued on page 11)




1—Crossing Bridge Over Ottawa River Near Burlington
2—Another Bridge Crossed on Leaving Glenwood, Iowa
3—Piloted Through Iowa Hills by Omaha Motorisits
4—Plodding Through the Mud Into Maryville, Mo

# GLIDDEN PATHFINDERS REACH END OF TRAIL

BANQUET GIVEN THE GLIDDEN PATHFINDERS BY CHICAGO MOTOR CLUB AT THE CHICAGO ATHLETIC ASSOCIATION

CHICAGO, May 14—Considerable of a stir was caused in Chicago yesterday by the arrival of the Glidden pathfinder, which marked the completion of the 1910 trail blazing expedition, which ran through thirteen states and on which journey the Chalmers car, carrying Dai H. Lewis, L. J. Smits, and Photographer Krone, with Joseph Gardham driving, covered 2,966 miles in 30 days. Not only did the Chicago Motor Club furnish an escort for the pathfinders from the Mississippi river across the state of Illinois, but it also showed its enthusiasm by tendering the pathfinding party a banquet at the Chicago Athletic Association last night which was one of the best motoring dinners ever given in this city.

Chairman Butler, of the contest board of the A. A. A., unexpectedly graced the occasion with his presence, stopping off here on his way to Indianapolis and Deroit in search of Glidden entries. The chairman was at the finish at the New Southern hotel along with many others, and was one of the first to shake Dai Lewis by the hand and congratulate him upon his work. In the motor squadron that rolled up to the New Southern hotel were two cars that had traveled from the Mississippi river and which were sent out by the Chicago Motor Club. One of them was a Chalmers driven by Charles E. Gregory and the other a Knox piloted by Frank Wood. At Geneva, 50 miles out, three other Chicago cars joined the procession, in one of which was President Hugh Chalmers and Secretary H. W. Ford, of the Chalmers Motor Co., who went out with James Levy, while the other two cars were a Chalmers and a Falcar, the first driven by Cartoonist C. A. Briggs, and the other by C. F. Van Sicklen.

Following the arrival of the pathfinding party there was a conference held, which was attended by Chairman Butler and David Beecroft, of the contest board of the A. A. A., and Dai Lewis and E. L. Ferguson, of the pathfinding party, at which the trip was thoroughly discussed. It was announced by Lewis that while the car itself had traveled 2,966 miles, the Glidden route proper would total 2,850. The conference resulted in the change of the date of starting from June 14 to June 15, because of Lewis having to squeeze in an extra day between Dallas and Oklahoma City. Therefore, as Chairman Butler frames it up, the tour will include Cincinnati, Louisville, Nashville, Sheffield, Memphis, Little Rock, Hot Springs, Dallas, Fort Worth, Oklahoma City, Wichita, Omaha, Council Bluffs, Des Moines, Cedar Rapids and Davenport. The Sunday stops will be at Hot Springs and Kansas City.

While Chairman Butler only had nineteen nominations booked for the tour when he was here, he was confident that there will be twice that many start. He had in hand for the Glidden two Premiers, three Chalmers, a Cole, two Maxwells, a Parry and a Glide, while in the Chicago trophy there were three Molines, a Lexington, Cole, Parry and Falcar. Two Cadillacs had been named as non-contestants by the Northwestern Military Academy, of Highland Park, Ill. In addition to this, the chairman announced that just before leaving New York he had been assured by W. C. Durant, of the General Motors Co., that two Buicks and two Oaklands would be put in the tour. In addition to this Mr. Butler had been informed that the entries of three Cartercars had been sent in, two of which will go in the Chicago trophy and the other in the Glidden.

The banquet in the evening was attended by seventy members of the club, and was unique in that the affair was handled throughout by a committee made up of local newspaper men, which was taken as an indication that the Glidden will be well taken care of in the publicity line, so far as Chicago publicity is concerned. R. J. Finnegan, of the Journal, was chairman of the committee, and E. G. Westlake, sporting editor of the Evening Post, was toastmaster, and a most witty one at that—a regular Job Hedges, one New Yorker declared. Of course the main theme of the evening was the Glidden tour, and this produced interesting speeches by Dai Lewis, Chairman Butler, E. L. Ferguson, David Beecroft, Thomas J. Hay and Secretary Harry T. Clinton, of the Chicago Motor Club. In addition to this, President Chalmers, of the Chalmers Motor Co., delivered an interesting talk on the motor situation as a whole, and his epigrams were particularly apt. Mr. Chalmers had been slated to talk on "Salesmanship," but, owing to the enthusiasm over the Glidden tour, this lecture was deferred to a later date.

**Pathfinder Reaches Detroit**

Detroit, Mich., May 16—With Joe Gardham at the wheel and Mayor Philip Breitmeyer acting as his escort, the Chalmers 30 pathfinding car arrived home this afternoon promptly on schedule, completing 3,175 miles of continuous travel, 2,850 of which constituted the official route of the Glidden tour. The car's entrance into the city was in the nature of a triumphal tour. It was met at Michigan avenue and the 7-mile road by a party of motorists numbering about 150, including delegations from the Detroit Motor Club, the Detroit Automobile Dealers' Association, officials of the Chalmers Motor Co., city officials and newspaper men. Headed by a band in a big touring car, the procession made its way leisurely into the city and took a turn around the business section, bringing up at the Hotel Pontchartrain, where felicitations were in order. The welcoming party had planned to meet Gardham at Dearborn, 12 miles out, but he reached there so far ahead of the scheduled time that he kept on going until he reached the 7-mile road, where he stopped his car and waited for the escort. Mayor Breitmeyer ex-

tended congratulations and a hearty welcome on behalf of the city, and Hugh Chalmers, president of the Chalmers Motor Co., was on hand to do the honors for the latter.

### GREAT SPEED AT CHEYENNE

Cheyenne, Wyo., May 11—Barney Oldfield, with the big Benz and the Knox, accompanied by Ben Kerscher and his Darracq, stopped off here today for the meet on the 4-mile circular speedway at Frontier park, where he succeeded in putting up two phenomenally fast performances. Drivng the Benz Barney did ½ mile in :17 and the full mile in :36, the time being taken by an automatic electrical device. If one were to book these marks made today by Oldfield it would be necessary to catalog them as American speedway records, although it hardly would be fair to Atlanta, Indianapolis and Los Angeles because of the size of the local circuit which permits of a mile straightaway being secured. In comparison with the world's best neither the half nor the mile stands as record because of the work of Hemery in the Benz at Brooklands last fall when he did the flying half in :14.076 and the mile in :31.055. In addition to the time trials there were several other events, one of which was an 8-mile handicap in which Oldfield in the Knox six proved the winner in 8:46⅘, defeating Bronson in a Buick, who had 1 minute handicap. A feature of the meet was the fact that 2,000 soldiers from Fort Russell guarded the course, while among the timers was Governor Brooks.

### SMALL MEET AT SHENANDOAH

Shenandoah, Ia., May 14—A crowd of 7,000 people attended the track meet here. Over 300 motorists journeyed to this city and thirty cars were entered in the races, representing four surrounding states. Of the four big events the National car, driven by Merrill of Omaha, won two, and the Mason, driven by Shutcliffe of Omaha, took two. In the competition for the $100 parade purse, for which 300 cars competed, W. G. Priest of Shenandoah took first prize. Summary:

Five-mile, 26 horsepower—Merrill, National, won; Wainwright, E-M-F, second. Time, 6:07¼.

Two-mile, free-for-all — Shutcliffe, Mason, won; Merrill, National, second. Time, 2:42.

Five-mile, 25 horsepower and under—Shutcliffe, Mason, won; Bruner, Hudson, second. Time, 6:04¼.

Ten-mile, free-for-all — Merrill, National, won; Shutcliffe, Mason, second. Time, 12:34½.

### PROMISES TO BE BIG CLIMB

Worcester, Mass., May 15—The board of aldermen of this city and the selectmen of Leicester have granted the Worcester Automobile Club permission to close the road up Dead Horse hill on June 4 for the annual hill-climbing event of the club, and work has begun on the hill by several hundred laborers to get it in shape for the contest. More entries than ever before have so far been received by the committee in charge of the climb.

## Fast Climb by Lexington in Kansas City's Contest

Kansas City, Mo., May 14—Watched by 3,000 spectators who had driven 10 miles to reach the firing line, the annual hill-climb of the Automobile Club of Kansas City, which was held on Dodson hill this afternoon, was a most interesting affair, and which resulted in a new record for the climb, which was made by A. O. Brooke, driving a Lexington 40. Brooke, agent for the car here, held the previous record of :59 3-5, made in a Stoddard-Dayton in 1908, but he eliminated this entirely today when he made the climb in the Lexington in 55 2-5 for the .6 mile.

In a way a damper was put on the climb by the scratching of fifteen of the fifty cars entered, because the hill had not been rebuilt as had been promised by the county highway engineer. This official gave as his excuse that because of the practice on the hill for the last 2 weeks his men could not do their work. Still, the contest was a good one, and that it was popular with the motorists of this city was shown when President Ewins, of the local club, counted 461 cars on the hill, exclusive of the contesting machines.

There was one accident which put out a most dangerous contender, a 75-horsepower Pennsylvania six cylinder, which was driven by Roy O. Kendall. This came in the free-for-all, in which the Pennsylvania skidded into the bank within 50 yards of the finish. While the car was somewhat damaged, no one was hurt. Summaries:

FREE-FOR-ALL

| Car | Time |
|---|---|
| Lexington | :55⅖ |
| Jackson | :56⅕ |
| Apperson | :59⅕ |
| Great Smith | 1:00⅘ |

CARS, $800 AND UNDER.

| | |
|---|---|
| Krit | 1:31⅕ |

CARS, $801 AND $1,200

| | |
|---|---|
| Ford | 1:06⅕ |
| Ford | 1:27 |

CARS, $1,201 AND $1,600

| | |
|---|---|
| Parry | 1:06⅖ |
| Great Western | 1:07⅖ |
| Everitt | 1:13⅘ |

CARS, $1,601 AND $2,000

| | |
|---|---|
| Jackson | :58⅘ |
| Henry | 1:10 |
| Auburn | 1:12 |
| Enger | 1:15 |
| Herreschoff | 1:27⅕ |

CARS, $2,001 AND $3,000

| | |
|---|---|
| Pennsylvania | 1:03 |
| Jackson | 1:06⅘ |
| Great Smith | 1:10⅖ |

CARS, $3,001 AND $4,000

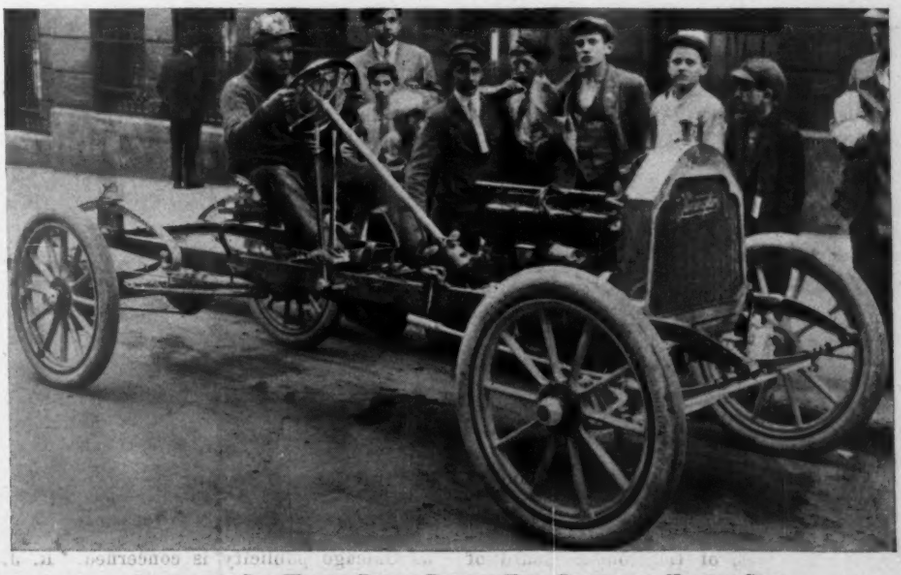
| | |
|---|---|
| Palmer-Singer | 1:05 |
| Palmer-Singer | 1:06⅕ |
| Palmer-Singer | 1:26 |

FREE-FOR-ALL, UNDER $3,000

| | |
|---|---|
| Jackson | :55⅘ |
| Lexington | :56 |
| Great Western | 1:00 |
| Apperson | 1:00⅘ |
| Ford | 1:00⅘ |
| Great Smith | 1:02 |
| Jackson | 1:05 |

### MORE BANKING FOR ATLANTA

Atlanta, Ga., May 16—Despite the fact that the spring races of the Atlanta speedway were far from the financial and artistic success the promoters desired, the Atlanta Automobile Association is going forward with plans for a meeting next fall. Though the track at present holds vastly more than its share of the American speedway records, an attempt doubtless will be made before fall to add considerably to its speed possibilities. The chief weakness in the track at present is the fact that the turns are not banked high enough for fast-moving cars. No big machine can take the present turns at anywhere near top speed. By running these turns up much higher it will be possible to increase the safety of the bends and enable high-powered cars to get around them at a tremendous rate. While the meet was in progress the project was discussed of making the turns out of timber, like the Los Angeles track, and it was admitted that, if the connection between the gravel part of the track and the timber could be made in a satisfactory manner, the rest of the engineering problems could be easily solved. An effort will be made to change the dates assigned to Atlanta for the fall meeting. The present days awarded Atlanta by the A. A. A. are October 20, 21 and 22. The card will contain fewer long races.



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## Should Support the Glidden

THE small entry for this year's Glidden tour is to be regretted, in that it is the greatest national tour in America, and should be one of the greatest in the world. This year's tour deserves especial attention at the hands of manufacturers because it has been laid out with the special object of developing the market through a new country, and owing to such it should receive the support of the majority of the makers in the country. There is no reason why the Glidden tour should not have 100 entries, the same as the Prince Henry tour in Germany, but it appears this season that nearly all of the high-priced makers have refused to enter the tour on the grounds that they have got everything out of it that they think possible to obtain. This is a purely selfish viewpoint, when it is remembered that the Glidden tour has been one of the biggest developers of motor sales throughout the country. Several manufacturers have gone on record by stating that they know of no other tour that has been such a developer of business as last year's Glidden, and realizing this the regret is all the greater that this year's entry list is so small. In Germany the biggest makers are the greatest supporters of the Prince Henry, whereas in America the big makers refuse to enter on the plea that they have all the business they can look after and also on the grounds that they do not hope to sell many cars in the territory through which the tour passes. This latter reason for not entering is both shortsighted and selfish, because, if they do not hope to sell many cars this season, they should at least be prepared to carry their share of the burden of developing this territory.

THIS year's Glidden goes through the territory that is the greatest agricultural producer in the country. It is not a scenic tour but a business one. One acre of the territory through Texas, Oklahoma and Kansas is worth more than 10 acres, and in some cases 25 acres, of the territory through which scenic routes of recent years have passed. It is true there is not any mountain-climbing or miles of water breaks, but instead of these there are long distances which will prove equally arduous on the cars. The mountain-climbing tour served admirably at a time when cars were in need of stronger springs, better brakes, better frames and better axles. Since that time these have been brought up to a higher standard and rarely show weaknesses in continued tests. Because of this general improvement in car construction it is possible to devote the major energy of the present tour to a development of the industry rather than to a car test, although never in any previous year have the rules been as closely drawn as for the coming season.

THE small entry list of cars at the opening of the Los Angeles board track, as well as the recent Atlanta meet, has suggested to many promoters the problem of why manufacturers are not entering in speedway races this season. The Atlanta speedway offered a particularly fruitful advertising medium, but yet the entry list was one of the smallest at any speedway event. It has been argued that Atlanta is not sufficiently central for speedway meets, but this argument has little weight when it is remembered that already some manufacturers have distributed more than 2,000 cars this year in Atlanta territory, and yet these same manufacturers did not see fit to enter a single car in the races. Manufacturers are making a mistake in not supporting stock car events of this nature, and sooner or later they will discover their error. It is all right to have a greater demand than supply at the present time, but that demand must be maintained.

## The Fatal 24-Hour Race

IT is surprising that with the number of accidents that have occurred in 24-hour races more precautions have not been taken for the safeguarding of the life of the drivers and mechanicians. It almost invariably happens that the trouble rests with posts on the inner fence, and it seems almost impossible to pardon promoters for not eliminating every post on the inner fence. Although it is customary to remove the rail or pole from this fence recent accidents have proven that this is not enough, and that the fence in its entirety must be removed if the lives of the contestants are to be properly safeguarded. The recent 24-hour race at Brighton beach added one more to the list of 24-hour fatalities and it would appear from those who were present that one life could have been spared had the necessary precautions regarding the inner fence been taken. The practice followed at the Los Angeles board track could be imitated to advantage on mile tracks if racing is to continue on them, which practice consists in hanging steel railroad rails hub high on the posts, so that it is impossible for the cars to go through the fence, these rails being sufficient to keep the car on the track. Boards, similarly located and intended for a similar purpose, have been used successfully at the Atlanta speedway and two or three what might have proven serious accidents have been avoided by their presence. The mere fact of removing the rail or pole from the inner fence on a mile track does not eliminate the trouble, as recent events have shown. It would be better, if the fence has not to be entirely removed, to leave the pole in place and secure steel rails, as already indicated. The contest board of the American Automobile Association should see to it that before any more sanctions for races are granted that this precaution is taken.

THE fact that the rules governing the Brighton Beach race last week were open to any cars that wished to compete is being justly criticised by many manufacturers today, who up to the present have been supporters of 24-hour races. Those who see benefit to the manufacturer in 24-hour events heretofore have been of the opinion that these races should be limited to stock cars, but the recent Brighton meet, open to any car, has removed the stock-car phase entirely from the situation. This is a regrettable point. If 24-hour races are run solely for the sake of the money made, then there is nothing to be said; but if manufacturers support them for the benefit they hope to obtain as makers then only stock cars should be eligible. In using wide-open rules for their recent race the Brighton Beach promoters have set a dangerous precedent and one which it is hoped will not be imitated by other promoters during the present season.

AT a time when some manufacturers are just at their busiest point in 1910 manufacture, others are announcing their 1911 machines, and are completing the last few 1910 cars and bringing out the first allotment for next season. This fact shows the manufacturing conditions of the different factories. It always has been the case that some concerns are the early birds, and as a result they have been able to sell nearly double the number of cars of their rivals. What has happened in previous years is happening this year and the end of the 1911 season will prove conclusively that those concerns which were early in the field each season carried off the majority of the business. The manufacture of motor cars is a business enterprise and those concerns without well-organized engineering, factory and sales forces will invariably find themselves second-raters in their classes.

# FINE FIELD FOR HOOSIERS' OPENING MEET

INDIANAPOLIS, Ind., May 17—With the opening of the May meet of the Indianapolis speedway just 10 days off, the interest attaching to this is increasing. Already a good entry list is assured and before the entries close, a week hence, it is expected that a list as big as that for the opening meet last year will have been received. To date the entries include seven National cars, five Marmons, three Jacksons, three Cuttings, two Coles, two Westcotts, two Marions and one each of Firestone, Empire, Pope-Hartford, Stoddard-Dayton, Fuller, American and Hupmobile. To these may be added one National entered by Arthur Greiner of Chicago in amateur events, one Fiat entered by E. A. Hearne of Chicago and another Fiat entered by Asa Candler, owner of the Atlanta speedway. This completes the cars actually entered, but promises of more have been received from nearly a dozen other concerns, so that the success of the meet already is assured.

One feature in connection with the entries on which E. A. Moross, manager of the speedway, must be congratulated, and that is the eliminating of appearance money. It is well known that large sums offered by the Los Angeles motordrome to certain drivers if they would drive was largely responsible for the financial failure of the meet. On that occasion some drivers were given as much as $4,000 appearance money. At Indianapolis this has been entirely stopped.

It is questionable if any meet has ever been conducted in America at which such a galaxy of big trophies has been offered. The most important trophy is the Wheeler & Schebler, to the winner of which is a $1,000 cash purse. This event is scheduled for Saturday, May 28.

On the opening day, Friday, May 27, the Prest-O-Lite trophy will be contested for, the distance being 100 miles. This trophy is open to 301 to 450 cubic inches stripped chassis. On the opening day there will be a 5-mile free-for-all race for the Indianapolis motor speedway helmet gold medal, which will be one of the big contests of the day.

Naturally the national championship events, which will be held Monday, May 30, Decoration day, will prove of greatest interest, as they will be the first national speedway events to be held in America. The program is a lengthy one of fourteen events. Of these eleven are stock cars and stock chassis contests, two are free-for-all open events and one is a free-for-all handicap Gold, silver and bronze national championship medals, valued at $150, $25 and $10 respectively, will be given in the different events. The last event will be a novel one for the John A. Wilson trophy, which will be for stock touring cars carrying regular passenger load. The car making 1 mile in 1 minute or under will be the winner. The G & J trophy, valued at $1,000, will be contested for at 50 miles by 231-300 cars. The complete program for the 3 days is as follows:

## National Championships To be Feature of May Racing on the Indianapolis Motor Speedway

MAY 27, 1910

Event No. 1—Cars, class D—Record trials from ¼ mile to 1 kilometer. To lower world's speedway records. Free-for-all cars. Each car will be permitted to make two trials, electrically timed.

Event No. 2—Stock chassis cars, class B, division 1—160 cubic inches piston displacement and under. Minimum weight, 1,100 pounds. Distance, 5 miles.

Event No. 3—Stock chassis cars, class B, division 2—161 to 230 cubic inches piston displacement. Minimum weight, 1,400 pounds. Distance, 5 miles.

Event No. 4—Stock chassis cars, class B, division 3—231 to 300 cubic inches piston displacement. Minimum weight, 1,700 pounds. Distance, 10 miles.

Event No. 5—Stock chassis cars, class B, division 4—301 to 450 cubic inches piston displacement. Minimum weight, 2,000 pounds. Distance, 5 miles.

Event No. 6—Stock chassis cars, class B, division 5—451 to 600 cubic inches piston displacement. Minimum weight, 2,300 pounds. Distance, 10 miles.

Event No. 7—Cars, class D—Free-for-all handicap. Open to all cars entered at this meet. Cars will be handicapped in accordance with their performances at this meet by the board of official handicappers. Distance, 5 miles.

Event No. 8—Stock chassis cars, class E—Open only to registered amateur drivers in accordance with definition of racing rules of the A. A. A. Distance, 5 miles.

Event No. 9—Cars, class D—Free-for-all open race. Distance, 5 miles. Conditions of deed of gift for the Indianapolis motor speedway helmet. This prize is to be competed for by free-for-all cars of class D, at the May, July, August and September meets, 1910. The winner of this race and the successive races for which this prize is offered, shall be entitled to $50 per week from Decoration day, May 30, until Thanksgiving day, 1910, provided he successfully defends and wins same at each meet. The speedway helmet is to be worn by the winner while defending same. In case of postponement or the declaring off of any of these meets, or discontinuing this event, then the last holder of this trophy shall receive the sum of $50 per week for 60 days after such notice has been published. The holder of this trophy at the end of the season is entitled to permanent possession of same.

Event No. 10—Stock chassis cars, class B, division 4—301 to 450 cubic inches piston displacement. Minimum weight, 2,000 pounds. Distance, 100 miles. For the Prest-O-Lite trophy.

MAY 28, 1910

Event No. 11—Cars, class D—Record trials for 1 mile. Free-for-all cars. To lower world's speedway records. Each car will be permitted to make two trials, electrically timed.

Event No. 12—Stock chassis cars, class B, division 4—301 to 450 cubic inches piston displacement. Minimum weight, 2,000 pounds. Distance, 10 miles.

Event No. 13—Stock chassis cars, class B, division 5—451 to 600 cubic inches piston displacement. Minimum weight, 2,300 pounds. Distance, 5 miles.

Event No. 14—Cars, class D—Free-for-all handicap. Open to all cars entered at this meet. Cars will be handicapped in accordance with their performances at this meet by the board of official handicappers. Distance, 10 miles.

Event No. 15—Stock chassis cars, class E—Open only to registered amateur drivers in accordance with definition of racing rules of the A. A. A. Distance, 10 miles.

Event No. 16—Stock chassis cars, class B, division 6—601 to 750 cubic inches piston displacement. Minimum weight, 2,500 pounds. Distance, 5 miles.

Event No. 17—Cars, class D—Free-for-all open race. Distance, 10 miles.

Event No. 18—Cars, class E—600 cubic inches piston displacement or less. Minimum weight, 2,300 pounds. Distance, 200 miles. For the Wheeler & Schebler trophy.

MONDAY, MAY 30

Event No. 1—Stock chassis cars, class B, division 1—160 cubic inches piston displacement and under. Minimum weight, 1,100 pounds. Distance, 5 miles.

Event No. 2—Stock chassis cars, class B, division 2—161 to 230 cubic inches piston displacement. Minimum weight, 1,400 pounds. Distance, 10 miles.

Event No. 3—Stock chassis cars, class B, division 3—231 to 300 cubic inches piston displacement. Minimum weight, 1,700 pounds. Distance, 5 miles.

Event No. 4—Stock chassis cars, class B, division 3—231 to 300 cubic inches piston displacement. Minimum weight, 1,700 pounds. Distance, 10 miles.

Event No. 5—Stock chassis cars, class B, division 4—301 to 450 cubic inches piston displacement. Minimum weight, 2,000 pounds. Distance, 5 miles.

Event No. 6—Stock chassis cars, class B, division 4—301 to 450 cubic inches piston displacement. Minimum weight, 2,000 pounds. Distance, 10 miles.

Event No. 7—Stock chassis cars, class B, division 5—451 to 600 cubic inches piston displacement. Minimum weight, 2,300 pounds. Distance, 5 miles.

Event No. 8—Stock chassis cars, class B, division 5—451 to 600 cubic inches piston displacement. Minimum weight, 2,300 pounds. Distance, 10 miles.

Event No. 9—Stock chassis cars, class B, division 6—601 to 750 cubic inches piston displacement. Minimum weight, 2,500 pounds. Distance, 5 miles.

Event No. 10—Cars, class D—Free-for-all open race. Open to all cars entered at this meet. Distance, 5 miles.

Event No. 11—Cars, class D—Free-for-all open race. Open to all cars entered at this meet. Distance, 10 miles.

Event No. 12—Cars, class D—Free-for-all handicap. Open to all cars entered at this meet. Cars will be handicapped in accordance to their performances at this meet by a board of official handicappers approved by the contest board of the American Automobile Association. Distance, 5 miles.

Event No. 13—Stock chassis cars, class B, division 3—231 to 300 cubic inches piston displacement. Minimum weight, 1,700 pounds. Distance, 50 miles, for the G & J trophy. Valued at $1,000. This event shall be competed for twice during the season of 1910.

Event No. 14—Stock cars, class E—For the John A. Wilson trophy. Valued at $150. Donated by John A. Wilson, of Franklin, Pa., to be awarded to the stock touring car that first makes a full mile in 1 minute or less under regular touring conditions and carrying four passengers; the contest to be confined to cars of not more than 50 horsepower, A. L. A. M. rating; regular touring bodies—not baby tonneaux or torpedo bodies—tanks full, top on but may be down; mud guards on and regular supply of tools; passengers to weigh not less than 160 pounds each and to sit upright in the car; to ensure there is no down grade, the mile to be made both ways of the track; if more than one entry in the contest, then the car making the fastest time to be awarded the cup, provided said fastest time equals a mile-a-minute.

## COBE CUP DEAL IS CLOSED

Chicago, May 17—The deal between the Chicago Automobile Club and the Indianapolis motor speedway relative to the running of the Cobe trophy race on the Hoosier motordrome was completed today when E. A. Moross, manager of the Indianapolis track, and the contest committee of the Chicago Automobile Club settled the details. The Cobe cup race will be the feature event on Monday, July 4, and will be open to cars of 600 cubic inches piston displacement and under, with a minimum weight of 2,300 pounds. Stock cars only are eligible, and the distance is to be 200 miles. The affair is to be handled by the Chicago Automobile Club, which will receive the entries and nominate the officials. The distance and conditions are the same as the Wheeler & Schebler cup race. Moross also announced that Indianapolis intends to charge only moderate entry fees this year, probably $25 per event, with $23 rebate in case of a start. The big rebate is to insure starting.

# Three Perfect at Harrisburg

PREMIER WAS THE OFFICIALS' CAR IN HARRISBURG TEST

MAXWELL IN OWNERS' DIVISION

HARRISBURG, PA., May 12—The final results of the 3-day reliability tour conducted by the Harrisburg Motor Club were announced by Referee W. R. Douglas at 5 o'clock this afternoon, practically the entire day having been consumed in giving the cars a strenuous brake test and a thorough technical inspection to discover all breakages. The highest honors go to three cars which were winners in their respective classes, and came through with perfect scores, the winner in the fourth class having penalty of 11 points.

In the class A for touring cars, $2,000 and over, a Pullman was the winner with a perfect score. In class B, touring cars under $2,000, the Inter-State was victor with 11 points penalty, 8 points received on road work the last day and 3 points in the final examination, made up of 1 for bent fender iron and 2 for a loose motor bearing, which bearing was not in adjustment when the car started. In the runabout division, class C, over $1,600, a Klinekar was winner with a perfect road score and perfect technical examination. In the runabout division, class B, under $1,600, a little two-cylinder Maxwell carried off honors from larger cars, winning, as it did, with a perfect road score and passing a perfect technical examination.

**Brake Test Severe**

It was a brake test at the end of the run which counted most against many of the cars, thirteen out of nineteen which took the test suffering penalties. In this test the cars approached a line at 20 miles per hour, when one set of brakes was applied; a car stopping at 50 feet or under was considered perfect, and over this penalties at the rate of 1 point per foot were imposed for each set of brakes. Many interesting features were discovered in connection with these brake tests. The technical committee had the rear axle of each car jacked up, and it was discovered in certain cases that the brakes were not rigid enough to prevent turning by hand. In other cases brakes in which equalizers were used were discovered to apply on one side only, the equalizer being inoperative for one reason or another. It was largely due to conditions of this nature that the heavy brake penalties were imposed. In the clutch test, which consisted in bringing the front wheels of the car against a 6-inch curb and requiring the driver to mount the curb, spin the rear wheels or stall the motor, all of the cars with the exception of the Columbia met this test.

In the examination of gearsets, it was discovered that the Warren-Detroit had stripped the intermediate gear during the contest, and it took a penalty of 25 points.

The details of penalties imposed on the different cars in the technical examination are given in the tables. It will be noted that in practically every case these penalties were for minor troubles, and that very few motor breaks were encountered, perhaps the most serious being the broken exhaust manifold on the Regal. Due largely to the condition of the roads, there was little spring trouble on the run, the Overland in class D being the only one to suffer, it having broken all the leaves in the left front spring on the third day of the run by running into a deep cross ditch on a brick pavement. This was the only example of spring trouble, but Pullman No. 34, Klinekar No. 49, lost points by losing nuts off shackle bolts.

The performance of the many cars in the run was particularly noteworthy, all of them completing the trip under their own power with the exception of No. 39 Pullman, which broke a universal joint when a short distance out of Harrisburg on the third day's run. It had to be towed into a garage, and automatically withdrew. No. 11, Mitchell car, in class C, was withdrawn the second day. This car had considerable carbureter trouble.

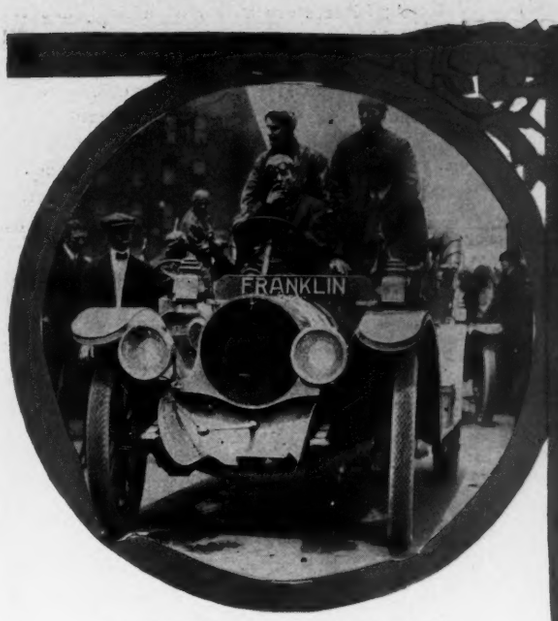
The report of the first 2 days of the tour, as far as road work performances are concerned, appeared in last week's issue of Motor Age. The third day's run, from Wildwood, N. J., to Harrisburg, by way of Philadelphia, a distance of 197 miles, proved the hardest of the tour. A heavy rain storm drenched the tourists as far as Philadelphia, and from Philadelphia to Harrisburg a previous all-day rain had put the roads in bad condition. As a result of this, some of the cars had carbureter troubles, and of the twenty cars still in the contest seven were penalized. One perfect score to fall was the Inter-State, which received 8 points. No. 56 Klinekar was penalized 3 points for taking on gasoline at Lancaster. The Warren-Detroit had continuous carbureter troubles, and received 58 points.

The Franklin No. 13, driven by John Burns, was the only car to have a perfect road score and survive outdoor tests yet suffer in the technical examination, receiving as it did 3 points—2 for a broken muffler support and 1 for a loose cover on a universal. No. 9 Kline made a particularly good performance, being clean in every respect except for 5 points brake penalty. Of the nineteen cars which took the final examination, eight passed it without revealing any derangement that brought penalty upon them, these eight being the Pullman, Klinekar in class A, the Enger in class B, two Klinekars and a Pullman in class C, and the Maxwell and a Klinekar in class D.

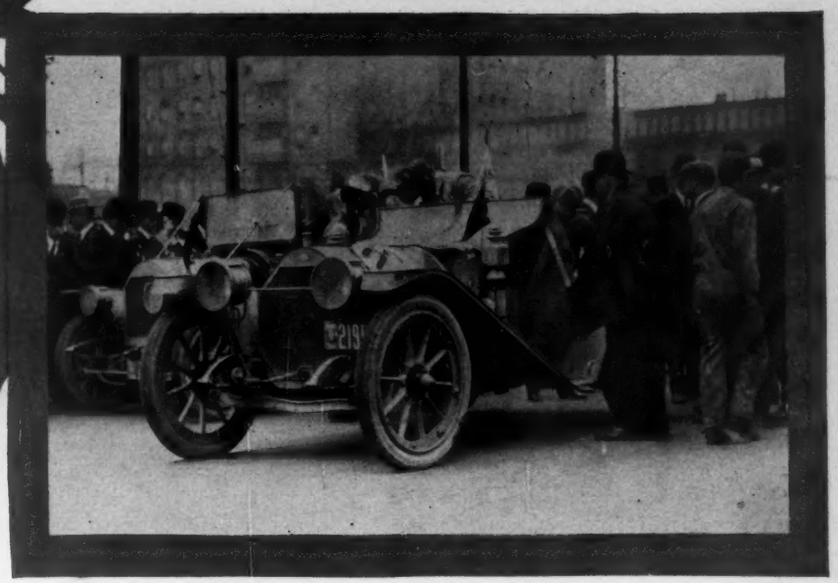
**Results in Owners' Division**

Harrisburg, Pa., May 17—Special telegram—Eleven of the nineteen cars which started in the members' class in the 3-day reliability contest of the Motor Club of

# Eastern Event Model of its Kind




THE FRANKLIN ENTRY, No. 13



KLINEKAR ROADSTER, WINNER IN ITS CLASS

Harrisburg finished with perfect scores, reaching all controls on time. There was considerable tire trouble on the last day and two cars were disabled. The Maxwell of D. G. Bowman broke a small pin in avoiding a car which had skidded, while the Rambler of J. A. W. Brubaker was disabled when within 60 miles of Harrisburg. The Klinekar, driven by M. E. Brightbill, was disqualified on the first day, and the Klinekar of M. B. Cumber was withdrawn on account of a faulty cylinder on the second day. A new cylinder was secured and the third day's trip made a perfect score. The Pullman of J. L. L. Kuhn was withdrawn after repeated tire troubles and delays. The cars finishing with perfect scores were: Maxwell, H. C. Wright; Buick, E. K. Frazer; Maxwell, F. H. Bomgardner; Buick, M. H. Baker; E-M-F, R. H. Forney; Mitchell, J. W. Shaffer; Ford, W. G. Starry; Cadillac, J. E. Dare; Cadillac, W. H. Riggle; Pullman, Thomas O'Connor; Franklin, George Karlavagn.

## RESULTS IN THE MANUFACTURERS' DIVISION OF THE HARRISBURG RELIABILITY RUN

| Car No. | Make of Car | Driver | TIME AND WORK ON ROAD: 1st Day | 2nd Day | 3rd Day | Total | Brakes | Clutch | Gear set | Total | TECHNICAL EXAMINATION | Grand total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | CLASS A, TOURING CARS, $2,001 AND OVER | | | | | | | | | |
| 36 | Pullman | Norman Gallatin | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |
| 13 | Franklin | John Burns | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 2—Broken muffler support<br>1—Lost cover universal joint | 3 |
| 8 | Klinekar | R. L. Morton | 0 | 0 | 0 | 0 | 7 | 0 | 0 | | 0 | 7 |
| 10 | Klinekar | Sam Cole | 0 | 0 | 0 | 0 | 42 | 0 | 0 | 4 | 1—Fan belt off<br>1—Water leak<br>2—Loose muffler | 46 |
| 37 | Pullman | Herb Bitner | 0 | 1 | 2 | 3 | 46 | 0 | 0 | 2 | 2—Glass oil gauge lost | 51 |
| 45 | Columbia | E. Yeager | 19 | 0 | 0 | 19 | 26 | 5 | 0 | 13 | 3—Loose ignition coils<br>7—Disabled throttle control<br>2—Loose mud apron<br>1—Oil plug lost | 63 |
| | | | CLASS B, TOURING CARS, UNDER $2,001 | | | | | | | | | |
| 41 | Inter-State | W. W. Vandergriff. | 0 | 0 | 8 | 8 | 0 | 0 | 0 | 3 | 1—Fender iron bent<br>2—Loose motor bearings | 11 |
| 12 | Regal | Frank Hosmer | 0 | 6 | 0 | 6 | 24 | 0 | 0 | 20 | 15—Broken manifold exhaust<br>2—Mud apron loose<br>2—Loose muffler<br>1—Lock nut loose | 44 |
| 46 | Enger | H. L. Brownback | 0 | 9 | 5 | 14 | 45 | 0 | 0 | | 0 | 59 |
| 49 | Klinekar | W. McCully | 0 | 3 | 22 | 25 | 53 | 0 | 0 | 3 | 2—Petcocks leak<br>1—Lost spring bolt nut | 81 |
| | | | CLASS C, RUNABOUTS, $1,601 AND OVER | | | | | | | | | |
| 7 | Klinekar | J. H. Kline | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |
| 35 | Pullman | Herbert Welker | 0 | 0 | 0 | 0 | 5 | 0 | 0 | | 0 | 5 |
| 47 | Marion | E. Greenwood | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 5 | 2—Front fender bent<br>2—Front guard rod bent<br>1—Lost hub cap | 9 |
| 56 | Klinekar | W. P. Seig | 27 | 0 | 3 | 30 | 5 | 0 | 0 | | 0 | 35 |
| 34 | Pullman | H. P. Hardesty | 1 | 0 | 0 | 1 | 36 | 0 | 0 | 2 | 2—Nuts off rear spring hanger | 39 |
| 11 | Mitchell | G. F. Snyder | 15 | Faulty carbureter | | | | | | | Withdrawn | |
| | | | CLASS D, RUNABOUTS, UNDER $1,601 | | | | | | | | | |
| 57 | Maxwell | A. D. Rea | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | 0 | 0 |
| 9 | Klinekar | C. C. Fairman | 0 | 0 | 0 | 0 | 5 | 0 | 0 | | 0 | 5 |
| 48 | Overland | E. Craig | 0 | 12 | 0 | 12 | 0 | 0 | 0 | 24 | 20—Broken spring<br>2—Loose truss rod<br>1—Rear mud guard bent<br>1—Water leak | 36 |
| 43 | Warren-Detroit | Tom Berger | 0 | 0 | 58 | 58 | 9 | 0 | 25 | 1 | Gasoline leak | 93 |
| 39 | Pullman | George Iches | 0 | 15 | Universal broken | | | | | | Withdrawn | |

# Brush Joins United States Motor

DETROIT, Mich., May 16—The big event of the past week in local motor car circles was the purchase of the Gray Motor Co., which manufactures marine and stationary gasoline engines, by the United States Motor Co. News of this transaction had scarcely become known before Frank Briscoe, president of the Brush Runabout Co., was on his way to New York with all the stock of his concern in his grip, and the announcement that the long pending deal between the Brush and the United States Motor Co. had been closed followed soon afterwards.

Benjamin Briscoe, president of the United States Motor Co., sends the following message to the local papers in response to a request for a statement:

"By action today we formally acquire Brush Runabout Co. and consummate purchase of Gray Motor Co. The acquirement of these two companies with the Alden-Sampson, together with the erection of new factories for the Alden Sampson in Detroit, will make Detroit an important producing point for us. We anticipate that the production of our Detroit companies for the next year will approximate 25,000 cars, besides a largely increased output of motors by the Gray Motor Co."

### Other Rumors Are Heard

It is persistently reported here that the United States Motor Co. also is after the Briscoe Mfg. Co. in this city, of which Frank Briscoe is president, but no official announcement to this effect has been made. J. Pierpont Morgan is a heavy stockholder in this concern. He owns 13,500 of the 16,000 shares of preferred outstanding and 2,500 shares of common stock, according to the last annual report. Benjamin and Frank Briscoe are the largest holders of the common stock, with 3,835 and 3,463 shares, respectively.

In the sale of the Brush, the holders of the $250,000 of common stock receive in place of it $625,000 of United States Motor common, or about two and one-half for one. Holders of Brush preferred, amounting to $150,000, will get an even exchange in United States Motor preferred, which pays 7 per cent. Frank Briscoe, with 8,419 shares of common and 1,095 preferred, is the largest stockholder in the Brush. He has been elected a director of the United States Motor Co. The other stockholders of the Brush are nearly all Detroiters.

Frank Briscoe states that the Brush plant, already one of the largest in Detroit, will immediately be enlarged at a cost of $500,000. It is proposed to increase the capacity of the plant to 20,000 cars annually.

The terms of the Gray Motor Co. deal are not made known, but it is certain that the stockholders of the local concern realized substantial profits. The company is capitalized at $250,000 and has a modern plant at Larned and Leib streets, where it has been turning out 7,000 engines per year. This output will be more than doubled by the erection of a new plant, the site for which will be purchased within the next 2 weeks. The plans for the new factory are nearly completed, Manager O. J. Mulford states, indicating that a definite understanding between the parties to the transaction just closed must have existed for some time.

Just what is behind the United States Motor Co.'s decision to engage in the manufacture of marine motors and stationary gasoline engines is a matter of considerable speculation here. The only explanation given out officially is that these products will form an excellent side line, and the company expects to handle them to great advantage through its various agencies. The Gray company has established its reputation on its two-cycle marine engines. There is a possibility, of course, that the company may later engage in the manufacture of motor car engines, but this is not probable, Mr. Mumford says—at least not for some time to come.

The Gray Motor Co. was organized by Mr. Mulford 4 years ago. Starting in a modest way, the business has forged ahead with remarkable strides and the two five-story buildings it now occupies are grossly inadequate to the company's requirements. Mr. Mulford, who has been president and general manager of the concern from its inception, will remain in active charge of the plant and also will occupy a high place in the councils of the United States Motor Co., it is understood.

Officers of the United States Motor Co. are expected in the city within the next day or so for the purpose of effecting a reorganization of the Gray Motor Co. and transacting other important business in connection with the recent operations in Detroit.

### Garage Deal Under Way

With preparations under way for the erection of two new plants and the enlargement of a third, Mr. Briscoe and his associates also are getting ready to build one of the largest garages and sales rooms in Detroit at the southwest corner of Woodward and Charlotte avenues. A deal has been practically closed for the land, 90 by 187 feet, and the old residence that now stands on the property is being dismantled. The building will be occupied by the Maxwell-Briscoe and Columbia agencies and local branch of the Firestone Tire and Rubber Co., all of which are now located on Jefferson avenue. The proposed location is just on the edge of a fashionable residence district and near the large garages of the Oldsmobile and John P. Schneider.

Architects are at work on the plans for the big garage to be built on West Grand boulevard, near Cass avenue, by the Buick Auto Supply and Garage Co. of Michigan. The structure will have a frontage of 245 feet on the boulevard and a depth of 150 feet. The garage proper will accommodate 400 cars. The front portion of the building will be two stories high and will be given over to spacious sales and stock rooms and offices. Unquestionably it will be one of the finest buildings of its kind in the country. The company recently opened a Detroit office in the Buhl block with Hugh L. Mines in charge as district representative. The headquarters are in Saginaw.

## MOVE TO DISMISS VELIE SUIT

Milwaukee, Wis., May 14—Motions to dismiss the suit of the Velie Motor Vehicle Company, of Moline, Ill., have been filed in the circuit court at Milwaukee in behalf of twenty-six of the fifty-five A. L. A. M. concerns made defendants in the action to recover $500,000 damages on charges of conspiracy in restraint of trade and to ruin the plaintiff company. The twenty-six defendants contend that the action was not brought in the proper manner and that service of summons was faulty. All of the defendants making the motion to dismiss the suit are not legally represented in Wisconsin. Service was made on agents representing their products in Milwaukee, when under the laws service must be made personally. The motion was filed by Quarles, Spence & Quarles, attorneys, Milwaukee. Arguments will be heard by Judge W. J. Turner on May 21 at Milwaukee.

Quarles, Spence & Quarles are now preparing briefs for the remaining companies, and these will be filed in 2 to 3 weeks' time. The nature of the answers is not known, and no information on this point will be permitted to escape before the day of filing the papers.

## TRADE CONDITIONS IN MANITOBA

Winnipeg, Man., May 14—One of the most notable features in connection with the motor trade in western Canada this spring is the preparation by the Brush Canadian and the Canadian Overland companies to undertake the assembling or manufacture of their cars in this country. Work has been commenced on a large factory at Regina, Sask., which will be rushed to completion in the hope of having it ready for the beginning of work next October. The annual capacity of the factory will be between 1,000 and 1,500 cars. The company will be admirably situated in the heart of the prairie country to serve their future trade, owing to the facilities for distribution.

The demand for cars continues unprecedented throughout the west. The fancies of the public are not confined to any particular car, but all the companies repre-

sented here seem to be doing a business which is about equal to their facilities. About seventy-five cars were retailed through the Winnipeg agencies during the past 10 days or fortnight, and many of these were of the most expensive type. An agent in the little town of Portage la Prairie, which has fewer than 4,000 people, but which has a very rich country surrounding it, has sold over $50,000 worth of cars this spring.

The English cars have not proven very popular among the western people for several reasons, and until the British manufacturers pay some more attention to the requirements of the trade of this country they cannot be considered a factor in the market. The western Canadians like a car with a high clearance, because of the fact that if any touring is to be done such is absolutely necessary on the trails.

The trails of the prairies are in shape for touring at present, being as dry and level as pavement almost in many places. The cars spin along over them as if they were macadam.

### MAKERS TALK ON TIRES

New York, May 14—At the board meeting the Association of Licensed Automobile Manufacturers, which was held at the New York headquarters Wednesday, there was a long discussion on the tire situation. Almost the entire membership was represented, and it was voted to place the matter in the hands of the tire committee, of which Albert L. Pope is chairman. There were three additional members appointed on the committee. S. M. Butler attended the meeting in behalf of the contest board of the A. A. A. He told of the racing situation and of the need for coöperation on the part of the manufacturers, in order to insure absolutely fair contests. Howard E. Coffin, president of the Society of Automobile Engineers, addressed the meeting on the plans of the society, having in view the standardization and general advancement of motor car building. C. F. Clarkson, formerly assistant general manager of the licensed association, has been made secretary of the engineering society. The other business transacted at the meeting was of a routine nature. Charles Clifton, the president, presided.

### DEATH OF J. A. RYERSON

Chicago, May 17—John A. Ryerson, president of the Ideal Electric Co. of this city, maker of the Ideal electric, either jumped or fell from the thirteenth floor of the Chamber of Commerce building yesterday afternoon. The fall killed him. It is stated that Mr. Ryerson jumped with suicidal intent. Business worry, it is claimed, may have caused him to commit the act, although it is said by officers of the Ideal Electric Co. that that concern is in a flourishing condition and that Mr. Ryerson need not have worried any over that.

# Analysis of the Glidden Route

(Continued from page 3)

2 miles out of Memphis is one of the best macadam boulevards in the south. The spirit of touring is not developed in Memphis to the extent it should be, and while there are miles of good road in Shelby county, in which the city is located, it is stated there are not over three motorists in the city who have taken a 100-mile tour in the outlying district. Memphis as a city is growing steadily, and it is expected that once the touring spirit is developed the good road cause will be greatly advanced. The 4-hour run through the stumpy region on this day's tour will be a good test of cars.

**Road Follows the Levee**

Leaving Memphis on the run to Little Rock, the first 60 miles is down the east side of the Mississippi, the road running along the side of the levee, which is a 15-foot embankment bordering the river to prevent its overflow in wet weather. Although within a stone's throw of the river for this distance, not a single glimpse of it is obtained. The ferry facilities at Helena have already been taken up. This 60-mile run is through cotton plantations with negro shanties as the only visible habitations. Many gates through plantations will have to be opened and closed, and in the majority of cases colored boys will be on hand to do the work.

The run from Helena to Little Rock begins through the buckshot land, which is a level territory similar to the gumbo regions of Iowa. For 3 hours the tourists will pass through the rice country, which at that season the plants will just be merging through the top of the water. Once this rice country is passed, the cars will have a ¾-mile climb of 6 per cent grade, which is on to the tail end of the Ozark mountains, where they are tapering off to the level land. In all there will be two or three of such ascents, none of which will offer any difficulty. Once up these grades it is practically easy going to Little Rock. This territory offers an excellent car market, the pathfinders reporting many towns along the route in which five cars were owned in 1909 and already forty-two have been sold up to date. For 15 miles into Little Rock an ideal boulevard through cotton plantations is furnished. The speed limit on this boulevard is limited only by the capabilities of the cars. Many of the planters in this section own from two to four cars each.

**Sunday at Hot Springs**

The run from Little Rock to Hot Springs, a 60-mile trip, which is proposed to make on a Sunday morning, in order that the tourist may spend the day at Hot Springs, is generally bad. The first 10 miles is boulevard, the remaining 50 constantly up and down, with short, steep climbs and just as sudden descents. This is the section of creeks, the creeks often being not more than 50 feet apart.

The Monday run from Hot Springs to Texarkana will be one of the hardest days on the trip. Originally it was to be a jaunt of 191 miles, but owing to the 60-mile run from Little Rock to Hot Springs being made on Sunday, the Monday trip will be reduced to 131 miles. Of these remaining 131 miles, 80 are particularly hilly, these hills ranging from ¼ to ⅛ mile in length, and some with grades as high as 20 per cent. This is one of the poorest selling sections of the trip, the country being wooded nearly all of the way.

Once Arkadelphia is passed the troubles of the tour are over, so far as roads are concerned, the remainder of the run to Chicago being through continuous agricultural territory. To Texarkana the road is level, and through a cotton and corn country.

At Texarkana, which is on the state line between Arkansas and Texas, the state line passes through the middle of the main street, so that to satisfy the natives half of the cars will be parked on the Arkansas side of the line and the other half on the Texas side. For some miles out of Texarkana some stumps will be encountered on the road, but after Paris is passed it is nothing but a perfectly level road to Dallas. Pathfinder Lewis reports that the boulevard leading 25 miles into Dallas is one of the most perfect roads encountered. From Dallas to Fort Worth, 32 miles, is a boulevard through corn and cotton country.

**Turns North at Fort Worth**

Fort Worth marks the turning point north on the run to Lawton. The road is good, except that for a 5-mile stretch there is an outcropping of stone, which has not been removed on the line between adjoining counties, and this will call for careful driving in the tour. From here to Lawton, and, in fact, to Oklahoma City, the road is as level as a desk. In all, the tourists will run 4 complete days over absolutely level territory, this territory beginning half a day before entering Dallas and extending until half-way between Wichita and Kansas City. During this period the cars will pass through the most productive agricultural territory in the world, cotton, corn and wheat being the great products. From Kansas City to Chicago it is a level country, with rolling roads at times which will not offer any difficulty whatever. Across Iowa from Omaha to Davenport the entire route follows the river-to-river road, which will be dragged all of the way the day before the tour. From Davenport to Chicago, across Illinois, no troubles of any nature will be met with. The Illinois of improved macadam thoroughfares leadroads are generally good, with many miles ing into Chicago.

# SIMPLEX FIRST IN THE BRIGHTON BEACH 24

NEW YORK, May 14—In the presence of the largest crowd that ever paid admission to see a 24-hour race, a 50-horsepower Simplex won the contest at Brighton Beach, which started at 9 o'clock Friday night and finished at 9:15 o'clock Saturday evening. Behind the winner came a Stearns 30-60, which also had comparatively smooth sailing during the entire trip. Both the Simplex and Stearns carried Continental tires. Third place was taken by the Fiat 45, which experienced a few minor troubles in the middle hours of the race, but which finished like a whirlwind.

Fourth came the Buick, driven by the Chevrolets, which competed during the later hours of the contest under protest because of alleged replacements of parts that had not been broken when the car smashed a camshaft early Saturday morning. Following these four came the Rainier, Croxton-Keeton, Marion, Buick, Cole and Selden in the order named. A Stearns and the Houpt-Rockwell entry did not finish; the first on account of a broken frame and the other because of a cracked cylinder.

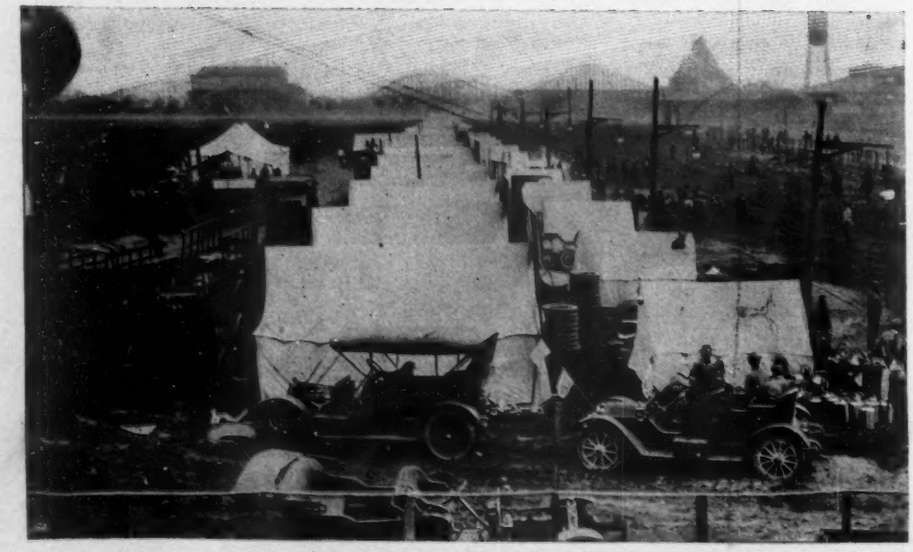
While the finish was tame as far as the leaders were concerned, it was spectacular in a number of other particulars. The Marion, a newcomer in the racing field which had experienced the roughest sort of a journey earlier in the race, came strong at the end and made up many miles lost through mishaps in the first burst of enthusiasm. The Buick No. 4 also finished with a fine spurt and prevented the Marion from having a walkover for the position it won at the end.

**Buicks Set Early Pace**

The two Buick entries, one of the Stearns cars and the Fiat set the pace for the first hour. Then the Buicks lapped their rivals and were leading at the end of the second hour. Buick No. 3, under the guidance of Louis Chevrolet, led until the end of the eighth hour, when it was put out for a time by mishap to the camshaft. At the end of the ninth hour the Fiat by a sensational drive took up the pacemaking, but succumbed to the Rainier at the end of the tenth. By the twelfth hour the steady pace of the Simplex began to tell and a little extra speed on the part of Basle and Poole put their car out in front. From the twelfth hour to the finish the Simplex went on about its business and widened the gap between it and its competitors.

The winner only made one sharp spurt during the race. All the rest of the time it was driven with just a shade in reserve. It laid off the furious pace of the start and was ready when the time came to shoot past the tiring field. The Stearns that finished second also avoided the terrific speed of the early pace and, while prominent throughout the struggle, did not show its real running until after the fifteenth hour, when it passed the Fiat and settled in behind the Simplex for the run home. The Fiat showed sparkling speed in half a dozen wild bursts and always was a dangerous contender.

SIMPLEX WHICH WON BRIGHTON BEACH 24-HOUR RACE



VIEW OF BRIGHTON BEACH PADDOCK DURING RACE

**Progress of the Race**

Chevrolet's Buick, which set the early pace, made a gallant showing despite the loss of nearly 2 hours early Saturday. At the end it was going along smartly and holding its own. The Rainier plugged along steadily from start to finish, occasionally making high figures and once assuming the lead, but never having quite the necessary speed to loom up as the winner. The showing of the Croxton-Keeton was creditable and its progress throughout the race was steady. The Marion, which went through the fence early in the race, made an astonishing finish, running tremendously in the last stages of the contest. This applies also to the Burman Buick. The Cole and Selden entries were given easy drives and both showed good speed and staying qualities.

Weather conditions were varied during the running of the race. The start was made in the cold, snappy wind, which quieted down as the night grew older. During Saturday afternoon heavy rain fell, soaking the track and the racers, but really doing a service in that it smoothed out some of the ruts and furrows that had been torn into the turns by the whirling cars and really made the going a trifle safer.

If the rain had not fallen some sort of repair work would have been necessary on the club-house turn and also on the far stable turn. As it was the effect of the drenching was to make the course slower for a while. There was only one delay during the race. Shortly before 1 o'clock

Saturday morning the red and green signals were displayed at the judges' stand and for 15 minutes the cars were halted. The incident proved to be a false alarm and the cars soon were sent away again upon their long journey.

**Conditions of the Contest**

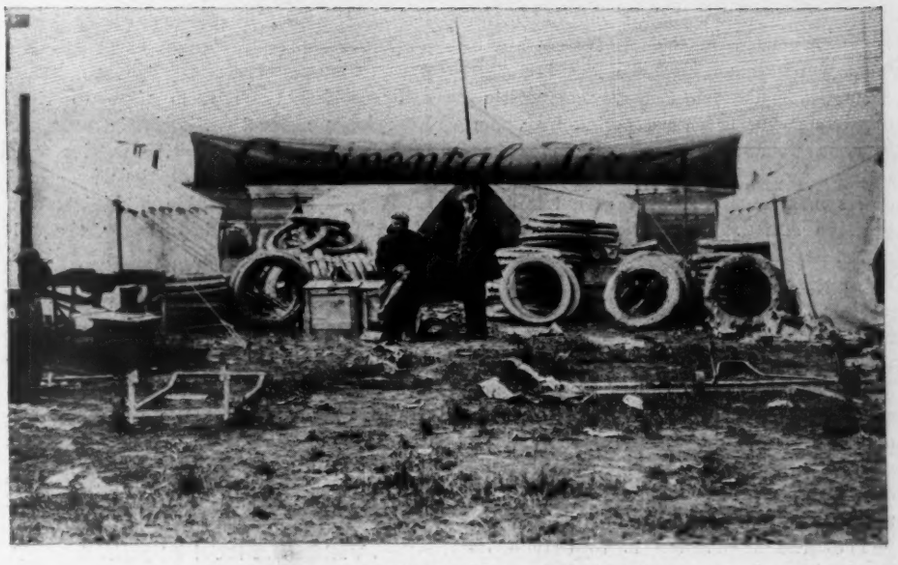
The conditions of the race were as follows: It was run under sanction of the A. A. A. contest board and in accordance with its rules. The classification was under class D, which reads: "Open to any gasoline car which complies with the definition of a motor car, without restriction as to piston displacement, weight, price or quantity produced." The start was standing.

Fully 30,000 persons paid admission during the 24 hours. Possibly there were 5,000 more in. The public got its money's worth of spectacular enjoyment and the Motor Racing Association made over $50,000 gross at the least calculation.

The racers failed to break the record because of the shower Saturday afternoon.

The weather was inclement; it was much too cold for drivers to remain long in good fettle, and the wind blew at a terrific pace, all of which, together with the fact that it was night time and that the track had furrows cut in it to quite some depth after the first hour or so, led up to a bad accident to the Marion car, which crashed through the fence. William F. Bradley, the mechanic on the car, was the victim, dying from his injuries at the Coney Island reception hospital. The driver, Gilbert Anderson, was thrown out of his seat and escaped without any hurt. Bradley was 29 years of age, was married and lived at Newark, N. J. Buick No. 2 turned turtle later on and Mechanic Jack Towers was severely bruised.


STEARNS NO. 1, MULFORD AND PATSCHKE DRIVING, WHICH RAN SECOND



SCENE IN THE TIRE CAMP AT BRIGHTON BEACH TRACK

## JERSEY SPEEDWAY ANNOUNCED

Philadelphia, Pa., May 16—Announcement is made of the incorporation of the Philadelphia Motordrome Association, with a capitalization of $2,000,000, for the purpose of constructing a speedway at Clementon, N. J. As yet the only evidence of a track is the blueprint, but it is stated that it is the intention to erect a 2-mile speedway, which will be built of solid concrete and surfaced with champed vitrified brick. George Robertson, it is said, will supervise the construction of the track. Clementon is about 13 miles from Philadelphia and accessible by means of several good roads and transportation lines. Besides the track it is the intention to erect a hotel and several other buildings, it is said.

## DETAILED SUMMARY OF BRIGHTON BEACH 24-HOUR RACE WON BY THE SIMPLEX

| No. | Car and drivers | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | Simplex—Basle, Poole | 54 | 106 | 155 | 202 | 240 | 289 | 341 | 388 | 440 | 492 | 545 | 598 | 649 | 697 | 745 | 794 | 842 | 880 | 926 | 971 | 1,014 | 1,059 | 1,103 | 1,145 |
| 1 | Stearns—Mulford, Patschke | 54 | 109 | 160 | 210 | 221 | 289 | 325 | 370 | 423 | 476 | 528 | 579 | 630 | 677 | 726 | 775 | 824 | 857 | 901 | 952 | 993 | 1,038 | 1,076 | 1,120 |
| 9 | Fiat—De Palma, Parker | 56 | 109 | 155 | 202 | 244 | 299 | 352 | 395 | 448 | 497 | 545 | 593 | 641 | 689 | 729 | 759 | 808 | 842 | 881 | 930 | 974 | 1,018 | 1,060 | 1,107 |
| 3 | Buick—L. and A. Chevrolet | 56 | 112 | 163 | 219 | 269 | 320 | 370 | 408 | 408 | 453 | 508 | 558 | 609 | 654 | 703 | 730 | 774 | 810 | 852 | 894 | 933 | 979 | 1,015 | 1,049 |
| 11 | Rainier—Disbrow, Owen | 54 | 108 | 156 | 208 | 256 | 305 | 353 | 404 | 443 | 496 | 550 | 580 | 616 | 652 | 703 | 747 | 793 | 818 | 865 | 906 | 935 | 959 | 998 | 1,037 |
| 12 | Croxton-Keeton—Lund, Spenny | 48 | 95 | 143 | 185 | 231 | 273 | 317 | 360 | 405 | 451 | 491 | 535 | 581 | 621 | 664 | 706 | 752 | 774 | 802 | 845 | 889 | 920 | 963 | 1,004 |
| 5 | Marion—Strang, Anderson | 51 | 102 | 151 | 161 | 205 | 249 | 283 | 327 | 375 | 425 | 473 | 520 | 563 | 613 | 661 | 698 | 742 | 770 | 805 | 828 | 870 | 906 | 947 | 989 |
| 4 | Buick—Burman, De Witt | 56 | 112 | 160 | 209 | 242 | 242 | 242 | 242 | 268 | 305 | 351 | 405 | 458 | 500 | 536 | 586 | 628 | 661 | 712 | 752 | 793 | 840 | 881 | 927 |
| 6 | Cole 30—Endicott, Edmonds | 49 | 99 | 145 | 185 | 187 | 227 | 236 | 270 | 314 | 353 | 389 | 430 | 448 | 456 | 466 | 503 | [illegible] | [illegible] | [illegible] | 627 | 660 | 692 | [illegible] | [illegible] |
| 10 | Selden—Mack, McMahon | 48 | 94 | 127 | 151 | 155 | 201 | 243 | 285 | 319 | 367 | 399 | 399 | 407 | 451 | 495 | 531 | 569 | 588 | 609 | 637 | 666 | 682 | 691 | 718 |
| 7 | Houpt—Roberts, Martin | 27 | 72 | 125 | 175 | 203 | 236 | 266 | 266 | 266 | 266 | 296 | 344 | 385 | 422 | 445 | 490 | 526 | 535 | 539 | 571 | Cracked cylinder | | | |
| 2 | Stearns—Howard, Dearborn | 56 | 108 | 160 | 213 | 258 | 310 | 349 | 400 | 435 | Out with broken frame | | | | | | | | | | | | | | |

# Complete Unlicensed Trade Body

DETROIT, Mich., May 18—Special telegram—The organization of the Association of Motor Car Manufacturers was completed here Monday. Officers were elected, but so far no one outside of those affiliated with the association have been able to learn anything. Henry C. Walters, attorney and spokesman of the new body, positively refuses to give out details, although he acknowledges that the A. M. C. M. has been organized; that it will be made up of unlicensed manufacturers, and that the headquarters will be in Detroit.

While Mr. Walters is secretive, yet some facts concerning the new organization have been learned from a letter which bears his signature and which has been sent to companies which might join the A. M. C. M. In it he disclaims any connection with Mr. Russell of Indianapolis, who was reputed to be forming a similar organization some time ago. He states that the objects of the association are to "develop and advance the motor car industry, stimulate legitimate competition, improve motor car construction by voluntary interchange of economic ideas relating thereto, and the mutual protection of its membership against illegal and oppressive action." Any person or corporation manufacturing motor vehicles and not operating under a Selden license is eligible to membership, the fee for which is $500. The annual dues will not be less than one-fifth of 1 per cent of the retail list price of the car or more than one-half of 1 per cent of the total number of cars manufactured and sold during the current year, these dues to be called in by the executive committee as the necessities of the association require. The central object of the association is to defend its members against present and future actions instituted by the A. L. A. M.

As to the strength of the association, Mr. Walters claims that of the sixty-eight companies invited to attend the first meeting May 2, twenty-two were represented; ten expressed by letter their willingness to join, while only one refused.

## BLAZES THE NATIONAL TRIAL

Atlanta, Ga., May 16—After a trip that consisted of a series of ovations and receptions the pathfinder car of the New York Herald-Atlanta Journal national highway good roads tour reached its destination, Atlanta, today. The Columbia 45-horsepower car made the trip without major mishap of any sort. The car traversed every known variety of roads. Across New Jersey and almost as far as Gettysburg the roads were in their usually excellent shape, and after passing the scene of the fiercest battle of the civil war, with all its historic interest, the highways toward the south improve with abruptness. Through the foothills of the Blue mountains and down the valley of the Shenandoah the going was enjoyable, although it will be better when the tour proper passes that way. The Maryland roads were in fair condition and the course from Hallstown to Charlestown was being given a very thorough scraping and filling in preparation for the tour.

From there to the Virginia line road-building machinery was to be seen all along the way. In Virginia road-rollers and gangs of men were engaged in road work at several places, and already the route to be followed by the tourists is comparatively free from thank-you-ma'ams. From Harrisburg to Staunton the road is in racing condition. When the pathfinder approached the mountains near Natural Bridge some dangerous bits of road were encountered on account of rains that fell earlier in the week, but there was no mishap and the scenic bit of the tour was accomplished with ease.

At various points along the way delegations of motorists met the pathfinders and escorted them from time to time. Everybody seemed enthusiastic over the tour and numerous tentative entries were made by enthusiasts along the way. Good roads and the reasonable administration of just laws were the keynotes of the welcoming speeches delivered everywhere. Whenever the car crossed a state line there was always a delegation awaiting to give greetings and good cheer.

The effect of the road building last year was still distinctly in evidence and the effort that is being made all along the route indicates that before the tour starts the course will be in good shape all the way from Atlanta to New York.

## VIRGINIA RUN RESULTS

Richmond, Va., May 16—The report of the officials of the Times-Dispatch endurance run contest, which began May 5 and closed on Saturday night, May 7, is as follows:

Division 2—No. 9, Hudson, owned by Gordon Motor Co., clean score cup.
Division 3—No. 10, Chalmers, owned by Gordon Motor Co., clean score cup; No. 20, Reo, owned by F. E. Nichols, clean sweep cup.
Division 4—No. 7, Buick 17, owned by J. R. Williams, of Aryonia, Va., clean score cup.
Division 5—No. 26, Rambler 54, owned by E. J. Allen, clean score cup.
Division 7—No. 35, Stevens-Duryea, owned by John B. Swartout, walkover cup.

In divisions 1 and 6 there were no awards. Cars were entered but did not finish. The sweepstakes cup will be decided by a drawing. The names of all five which have clean scores will appear upon the sweepstakes cup.

The awarding of prizes is withheld pending action of the A. A. A., protests being filed by Dr. Hillsman of the Oldsmobile against the Rambler of division 5; also by John K. Harper of the Ford car against the Hudson of division 2.

Ending in a sprint the Virginia endurance run, promoted by the Times-Dispatch, arrived in Richmond 2 hours ahead of time. Each car after it had been examined and reported on by the technical committee was taken to a garage for the night.

Several minor troubles were reported. One contestant came in with a broken spring, but there were no serious accidents during the trip. Only one thing marred the return journey from Washington, to which point the run was made. That was at Mount Crawford, where the Chalmers 30 of the Gordon Motor Co., a Maxwell driven and owned by Miss Anna Dunlop of Petersburg and a third car, which escaped, were held up by a constable while the mayor of the town fined the owners of the cars $10 each for speeding. There were thirty-three cars in the contest.

Altogether the endurance contest was a distinct success. Next month there will be given a North Carolina contest, which promises to be even more interesting, as the route will be longer. Already there have come announcements from various car owners of North Carolina that they will enter the contest. Cups similar to the Virginia contest cups will be presented the winners.

## KISSEL INVADES ELECTRIC FIELD

Hartford, Wis., May 17—A most important announcement made by the Kissel Motor Car Co., is that for 1911, in addition to its line of pleasure cars, the company will build an electric pleasure vehicle along standard lines and will also have on the market a line of commercial wagons consisting of motor trucks and delivery wagons. It is rumored that a 3-ton truck will be marketed, and it is expected the delivery wagons will be in the 1,500 to 2,000-pound field. The company will continue with 1911 improvements on its line of gasoline cars. With this object in view, the company recently disposed of the Hartford Plow Co. to a Moline, Ill., concern and will use the room thus obtained in extending the motor car plant. Several buildings also are under construction and plans in hand for others. The entire Kissel interests will concentrate their efforts in the motor car business in the future. The only information given out regarding the new Kissel electric is that it will be produced in large quantities for next year and will be a shaft-drive car.

## TRACK MEET AT DENVER

Denver, Col., May 15—Barney Oldfield was the star of the 2-day track meet held here Friday and Saturday of last week. Rain marred the first day after Oldfield in the Benz had lowered his own mile record for the track from :56 to :54.1 and Kerscher in a Darracq had done :57. Also a 10-mile race for cars listing at $1,250 and under was started, but rain stopped it. Yesterday the meet was resumed, the feature being a mile in :53⅘ by Oldfield in the Benz. An Overland won the 5-mile $1,250 class race from the Warren-Detroit

in 6:20, while Kerscher, scratch, in the Darracq captured the 5-mile handicap in 5:11⅘. He also won a free-for-all handicap for the Governor Shafroth cup, which was reduced from 5 to 3 miles in 3:00. Ball in an Overland was second and Hough in a Warren-Detroit third.

### STARTS OVERLAND TOUR

New York, May 17—Miss Blanche Scott in her Overland 38 commenced her long tour from New York to San Francisco yesterday afternoon. Miss Scott undertakes the trip without male help of any sort and is accompanied by a girl friend only. Miss Scott was tendered a luncheon at the Hotel Claremont before the official commencement of the trip. The guests included representatives of the press and the Overland company. About 3 o'clock the young woman cranked her motor and, stepping into the car with her friend, turned northward. The only condition involved in the trip is that Miss Scott shall receive no assistance from male persons along the way in the shape of repair work. Her first objective point is to be Albany and from thence her course will be westward along the south shore of Lake Erie.

### MERCER IN LONG RUN

New York, May 16—Early this morning a 30-horsepower Mercer car left New York on a trip from coast to coast with Los Angeles as its objective point. The car is in charge of C. H. Bigelow, who will boost good roads. Bigelow will travel but 12 or 14 hours daily and will drive the car as far as New Mexico, where if he arrives on schedule time he will be met by Harris Hanshue, who will run the Mercer part of the remaining distance of 800 miles. The distance for the entire trip of the transcontinental run is about 2,000 miles.

### PRINCE HENRY HAS 132 ENTRIES

Berlin, May 9.—Six new entries have been received for the Prince Henry tour, making a total of 132 cars that will start. The six are two Mercedes, two Berliets, a Brennabor and a Bergmann—four German cars and two of foreign make. Probably no other motor contest for touring cars only ever has brought into the promoters' strong box such a snug sum as this one. All told, $17,250 has been paid by the entrants at the rate of $125 for each of the 126 first entries and double fee or $250 for the six late comers.

### GOODYEAR RAISES PRICES

Akron, O., May 16—The Goodyear Tire and Rubber Co. announces an increase of 15 per cent in price on motor car tires. This increase went into effect on Monday of this week. It is understood that this applies to clincher types of tires and not the Goodyear straight-side, quick-detachable tire. No previous notice was given regarding this price increase, the different branches receiving their notices the day the raise went into effect.

# Norristown Reliability Now On

NORRISTOWN, Pa., Hay 18—Fifty-two cars are on the road this morning en route from this place for Scranton in the third annual endurance run of the Norristown Motor Club. Forty-three of these cars are contesting for the handsome prizes hung up by the club—the MacDonald & Campbell trophy in class A, the McCullough trophy in class B, the Kelly-Springfield trophy in class C and the Norristown chamber of commerce trophy in class D—all in division 1—manufacturers' and sales agents' classes in division 2—membership classes—suitable medals will be awarded to all cars having clean scores on the road. Thirty-one different makes are represented.

Today's run is 150.8 miles, with Reading, Pottsville, Hazleton and Wilkes-Barre as checking stations, and the Hotel Jermyn, Scranton, the overnight headquarters.

Yesterday afternoon the technical committee went over the contesting cars, which were impounded in the Norris City garage. In the evening a combination smoker and instruction-fest was held at the handsome club house, on the Reading pike at Jeffersonville, when drivers and observers were given their final orders and several knotty points thrashed out by Referee Rex and A. A. A. Representative Folwell.

Starter Samuel B. Griffith sent the first car away promptly on the stroke of 7, the others following at 1-minute intervals, as follows:

**Division No. 1—Manufacturers**

CLASS A—TOURING CARS, $2,001 AND OVER

| | Name of Car | Driver |
|---|---|---|
| 1 | Pullman | A. H. Bitner |
| 2 | Pullman | Norman Gallatin |
| 23 | Selden | Charles Youngs |
| 13 | Franklin | John Burns |
| 3 | Matheson | Alvin Hall |
| 4 | Kline | Robert L. Morton |

CLASS B—TOURING CARS, $2,000 AND UNDER

| | | |
|---|---|---|
| 5 | Regal-Detroit | Frank Hosmer |
| 6 | Inter-State | D. Frank Templeton |
| 7 | Enger | Henry L. Brownback |
| 8 | Regal-Detroit | Joseph Coulston |
| 9 | Maxwell | H. E. Walls |
| 10 | Ford | James A. Cherry |
| 11 | Buick | Edward Wilkie |
| 12 | Inter-State | W. W. Vandergrift |

CLASS C—RUNABOUTS, $1,601 AND OVER

| | | |
|---|---|---|
| 14 | Alco | W. C. Longstreth |
| 15 | Jackson | Ira L. Brown |
| 16 | Palmer-Singer | George P. Parker |
| 17 | Knox | Frank Gamble |
| 18 | Premier | W. Gordon Dyer |
| 19 | Pullman | H. P. Hardesty |
| 20 | Kline | J. A. Kline |

CLASS D—RUNABOUTS, $1,600 AND UNDER

| | | |
|---|---|---|
| 21 | Warren-Detroit | Thomas Berger |
| 22 | Mitchell | Robert A. Jackson |
| 24 | Ford | John Leonard |
| 25 | Ford | Louis C. Block |
| 26 | Overland | D. McDermott |
| 27 | Maxwell | A. D. Rea |
| 28 | Parry | Donald Stroud |
| 29 | Black Crow | Charles C. Blind |
| 30 | Kline | C. C. Fairlamb |

**Division No. 2—Membership**

CLASS A CONTESTANTS

| | | |
|---|---|---|
| 31 | American Traveler | John Mountain |
| 32 | Cadillac | J. Elwood Lee |
| 33 | Overland | William H. Detwiler |
| 34 | Selden | Fred. Dyer |
| 35 | Inter-State | Clement Eckrode |
| 36 | Chalmers | W. Guy Miller |
| 37 | Pierce Arrow | P. V. Hoy |

CLASS B NON-CONTESTANTS

| | | |
|---|---|---|
| 38 | Packard | William Thompson |
| 39 | Inter-State | Frank R. Heavner |
| 40 | Buick | T. V. Smith |
| 41 | Flanders | Norman Cassell |
| 42 | E.-M.-F. | W. R. Gordon |
| 43 | Pennsylvania | Alonzo Mancil |

**Hard Going First Day**

Scranton, Pa., May 18—Special telegram—Under the conditions, the 20-mile-an-hour schedule for the Norristown reliability run which the committee decided upon just before the start, was a very hard one, and especially upon the smaller cars, and time penalties will be numerous. There was much low and intermediate gear work today, which with the heavy roads, due to an all-night rain, kept the cars behind schedule. But one mishap has been reported as yet. A Palmer-Singer, No. 16, George P. Parker, driver, while endeavoring to make up lost time on the state road leading down into Wilkes-Barre, skidded into the side of a concrete bridge and badly damaged both left wheels. Nobody was hurt, the iron posts which protect the sides of the road preventing the car from falling into a deep ravine.

PRESIDENT TAFT WELCOMES CONTESTANTS IN VIRGINIA RELIABILITY RUN

# Growth of the Foreign Industry

PARIS, May 6—What a difference just 12 years make in the evolution of an industry! In 1899 the first count of motor cars in France was taken by the government. It showed there were then 1,672 taxable cars in the country. In Great Britain the first official count was taken in 1902, there being then 5,241 machines. As at that time there were 9,207 cars in France, it is considered fair to credit Great Britain with about 550 cars for 1899. Germany shows only 2,214 motor cars to its credit in its first count in 1904. If there were 250 cars recorded in Germany in 1899 it is a very fair showing. Thus, it would make a total of 2,472 motor cars in the three most important motor countries of the old world in the year 1899. Today, or rather on the first day of 1910, there were, according to the state records of these three big countries, a total of 182,360 machines, which includes 26,756 commercial or industrial vehicles, of which 23,933 were in Great Britain and 2,823 in Germany. As for France the records do not mention whether or not the utility vehicles are included in the account.

Just think of it, 182,360 motor cars in operation in 1910 and 2,472 in 1899! And yet there are to be found almost daily so-called intelligent men who still doubt that the motor car has come to stay or who think it is nothing but a sport's vehicle.

The following table shows the number of cars subject to taxes in France yearly since 1899 and the annual increase over the preceding year:

| Year | No of cars | Increase |
|---|---|---|
| 1899 | 1,672 | .... |
| 1900 | 2,997 | 1,325 |
| 1901 | 5,386 | 2,389 |
| 1902 | 9,207 | 3,821 |
| 1903 | 12,984 | 3,777 |
| 1904 | 17,107 | 4,123 |
| 1905 | 21,524 | 4,417 |
| 1906 | 26,262 | 4,738 |
| 1907 | 31,286 | 5,024 |
| 1908 | 37,586 | 6,300 |
| 1909 | 42,143 | 4,557 |
| 1910 | 46,114 | 3,971 |

The records for Great Britain since 1902 are as follows:

| Year | No of cars | Increase |
|---|---|---|
| 1902 | 5,241 | .... |
| 1903 | 9,674 | 4,433 |
| 1904 | 12,611 | 2,937 |
| 1905 | 16,384 | 3,773 |
| 1906 | 25,944 | 9,560 |
| 1907 | 40,641 | 14,697 |
| 1908 | 49,912 | 9,271 |
| 1909 | 60,037 | 10,125 |
| 1910 | 84,841 | 24,804 |

Prior to 1907 the German statistics which were consulted were not very accurate, it seems. Therefore, only the figures from that date on are given herewith:

| Year | No. of cars | Increase |
|---|---|---|
| 1907 | 10,115 | .... |
| 1908 | 14,671 | 4,556 |
| 1909 | 18,547 | 3,876 |
| 1910 | 24,639 | 6,092 |

How striking the development of the motor car in Great Britain as compared with France and Germany. The reason of it is that the Britisher does not now consider the car as a luxury, which idea still strongly prevails in the German and French-speaking countries. Then there are the differences in business methods, in advertising. The English manufacturers advertise much more extensively and get much more support from their press in general than the French or German manufacturers. This may not seem a very important fact, yet it is all-important, as might be found out by asking some of the most successful car makers of the British isles.

France ought to be the land with the most cars here in Europe, because of its fine roads, the wealth of its people, the beauty of the whole country. The authorities have, however, made such a vigorous war against everyone driving a motor car that it has discouraged many a prospective buyer. All this also applies to Germany, although the roads in general are not as fine there as in France.

Another reason why there are so many more cars in Great Britain is the fact that the Englishman has not been slow in finding that from a purely commercial side the motor car is a money-saving and money-making vehicle. A large number of the touring cars owned by the Britishers are their street car or railroads during 6 days of the week and on the seventh it becomes their pleasure car. In France and Germany the commercial traveler, the drummer, who uses a motor car for business purposes is still an event worth while mentioning in the local papers.

A local publication gives the following figures as being the official record as to the number of motor cars registered in the United States since 1903. Whether these figures are accurate or not cannot be ascertained at this end. Here they are:

| Years | No. of Cars | Increase |
|---|---|---|
| 1903 | 4,018 | ..... |
| 1904 | 6,551 | 2,503 |
| 1905 | 9,874 | 3,323 |
| 1906 | 17,042 | 7,168 |
| 1907 | 39,131 | 22,089 |
| 1908 | 57,363 | 18,232 |
| 1909 | 79,652 | 22,289 |
| *1910 | 130,000 | 50,348 |

* Estimated

## PUSHING SIGNBOARD WORK

Chicago, May 17—The signboard campaign of the Chicago Motor Club, under the direction of J. V. Lawrence, is being pushed aggressively. A record has been established in the course of the last week in signboarding the Chicago-Crown Point route, which required 150 signs, which were placed on thirty-one signposts. Chairman Lawrence is greatly assisted in this work by the use of a Grabowsky truck, the use of which was tendered by the local agent, Floyd Goodwin. This Crown Point route was completed in 1 week. Following this it was the intention to send out a White truck to work on the Milwaukee, Ottawa and Rockford routes.

## TWENTY IN HARTFORD RUN

Hartford, Conn., May 17—Twenty entries have been received for the 3-day 600-mile reliability run of the Automobile Club of Hartford, to be held Thursday, Friday and Saturday of this week. The first day's run is through Litchfield county and over to the New York and Massachusetts state lines as far south as New Milford. The second leg is through the southwestern section of the state as far as Stamford, and the third day is devoted to the territory east of the Connecticut river. The following are the entries: Two Chalmers, two Cartercars, two Nationals, two Franklins, and a Corbin, Jackson, Reo, Speedwell, Columbia, Inter-State, Pierce-Racine, Lexington, Overland, Regal, Auburn and a Tiley.

## GIANT'S DESPAIR CARD

Wilkes-Barre, Pa., May 16—The Wilkes-Barre Automobile Club plans to include eleven events in its fifth annual hill climb over the Giant's Despair course, June 11. These will be the free-for-all, with two special cash prizes as an inducement to bring out the best cars and drivers in the

## Coming Events of Impor-

May 19—Economy run of Chicago Motor Club to Lake Geneva and return.

May 19-20-21—Reliability run of Automobile Club of Hartford, Hartford, Conn.

May 22—Reliability run, Fort Worth Star-Telegram, Fort Worth, Tex.

May 29—Spanish voiturette road race for Catalunya cup.

May 27-28-30—Speedway meet at Indianapolis.

May 30—Track meet of Bay State Automobile Association, Boston.

May 27-30—Two-day reliability run of Columbus Automobile Club, Columbus, O., to Indianapolis and return.

May 28—Hill-climb of Amateur Automobile Contest Association, White Plains, N. Y.

May 30—Oklahoma reliability run of Daily Oklahoman.

May 28-30—Track meet of Automobile Club of Kansas City, Kansas City, Mo.

May 30—Hill-climb of Automobile Club of Bridgeport, Bridgeport, Conn.

May 30—Decoration day road race of Denver Motor Club, Denver, Colo.

May 29-30-31—Speedway meet at Los Angeles, Cal.

May 27-31—Reliability run of Washington Post, Washington, D. C.

June 1—Road races of Motor Contest Association, Riverside, L. I.

June 4—Track meet of Quaker City Motor Club, Philadelphia.

June 4—Annual hill-climb of Worcester Automobile Club, Worcester, Mass.

June 11—Annual Giant's Despair hill-climb, Wilkes-Barre, Pa.

June 11—Road races of Portland Automobile Club, Portland, Ore.

June 14—Start of Glidden tour from Cincinnati.

June 17—Automobile Club of Maryland's hill-climb, Baltimore, Md.

June 18—Hill-climb of Upper Westchester A. C., Ossining, N. Y.

July 1-2-4—Speedway meet at Indianapolis.

country; the $2,000-to-$3,000 stock chassis event, for the Hollenbeck $1,000 trophy; the $3,001-to-$4,000 runabout race; the six-cylinder stock chassis event for cars rated at $3,001 to $4,000; the over $4,000 climb; stock car events for machines costing $800 and under, from $801 to $1,200, from $1,201 to $1,600 and from $1,601 to $2,000; a consolation event, and a class open only to members of the Wilkes-Barre Automobile Club. As was the case last year, the course will be patrolled by the state constabulary. Work on the course already is in progress; the turns are being banked, the thank-you-ma'ams eliminated and every precaution that human ingenuity can devise will be taken to avoid accidents.

### MICHIGAN FAVORS CONVICT LABOR

Grand Rapids, Mich., May 14—With about 100 delegates from various portions of the state present, the third annual convention of the Michigan State Good Roads Association was held in this city Thursday. The chief subject discussed at the meeting was the bringing about of a better system of highways without burdening the taxpayer with unreasonable taxes. The solution decided upon was the employment of convict labor on the highways. In Michigan there are vast deposits of trap rock, one of the best of materials for the construction of highways. This rock, it was advocated, might be crushed through the use of labor from the penitentiaries and used. In his address the retiring president, William W. Todd, advocated the establishment of road signs.

## tance in Motoring World

July 1-10—Road carnival of licensed dealers at Los Angeles, Cal.
July 2—Reliability run of North Wildwood Automobile Club, Philadelphia.
July 2-3-4—Speedway meet at Los Angeles, Cal.
July 4—Track meet of Motor Club of Wildwood, N. J.
July 4—Track meet of Dallas Automobile Club, Dallas, Tex.
July 4—Track meet of Cheyenne Motor Club, Cheyenne, Wyo.
July 4—Hill-climb of Automobile Club of Auburn, Auburn, N. Y.
July 4—Track meet of Minnesota State Automobile Association, St. Paul.
July 11—Hill-climb of Plainfield Automobile Club, Plainfield, N. J.
July—Hill-climb at Richfield Springs, N. Y.; middle of month.
July—Road race of Grand Rapids Automobile Club, Grand Rapids, Mich.; middle of month.
July 18-23—Milwaukee Sentinel trophy. Tour of Wisconsin State Automobile Association.
July 30—Track meet of North Wildwood Automobile Club, Wildwood, N. J.
August 1—Reliability run of Minneapolis Automobile Club, Minneapolis, Minn.
August 1-September 15—French industrial vehicle trials.
August 15—Annual hill-climb of Chicago Motor Club at Algonquin, Ill.
August 15—Start of Munsey tour.
August 17—Track meet at Cheyenne, Wyo.
August 31—Reliability run of Minnesota State Automobile Association.
September 2-3-5—Speedway meet at Indianapolis.
September 3—Reliability run of North Wildwood Automobile Club, Wildwood, N. J.
September 5—Track meet at Wildwood, N. J.
September 5—Track meet at Cheyenne, Wyo.

# French Pay Taxes on 66,669 Cars

PARIS, May 9—According to official figures just published by the finance department of the government, the number of motor cars having paid taxes in France last year was 66,669. This includes privately-owned cars, taxicabs, renting cars, and omnibuses in both town and country service. Purely commercial vehicles, such as trucks and light delivery vans, being exempt from taxation, are not included in these figures. The 66,669 cars only comprise those actually in service during the past year. As a matter of fact the figures are rather on the conservative side, for cars laid up in garages for a lengthy period are naturally not declared by their owners for taxation purposes; manufacturers and salesmen have always a number of cars on the road for demonstration purposes which do not pay taxes, and the hundreds of foreign cars which annually come to France for periods of 1 to 6 months every year are not taxed and are not included in the official figures. This is the most reliable way of arriving at the actual number of cars in a country, for it only comprises those in daily use. In making comparisons it should be borne in mind that almost all other countries give the number of registrations only. As every car that goes on the road is registered, and continues to be registered even if it is put out of existence by old age or accident, and is also responsible for a duplicate registration whenever it changes hands, these figures are of necessity from 30 to 50 per cent higher than the figures for cars having paid taxes.

There being no separate registration, and no taxation, it is impossible to accurately determine the number of commercial vehicles in use in Paris. It is generally estimated, however, that the number is 15,000. This gives a total of 81,669 motor cars of all kinds in full service during the financial year 1909. There has been a considerable increase, as is shown by figures for the past 3 years. In 1908 taxes were paid by 34,269 motor vehicles; in 1908 the number had increased to 43,063; for the year 1909 it had risen to 66,669.

### ITALY DOES BIG BUSINESS

Milan, May 10—Italy's motor industry is steadily becoming one of the most important industrial factors in this country. The official records for the year 1909 have not been made public but it is known that last year 434 more chassis were exported by the Italian manufacturers than in 1908. At an average price of $3,400 it means nearly $1,500,000 more to the home makers over the previous year's export business.

The total value of cars or chassis only exported from the Italian plants in 1908 was $5,732,975, in 1907 it was $4,083,662 and in 1906 the total was $2,405,540. The importation of foreign cars or chassis during those 3 years was respectively $945,244, $1,752,323 and $2,007,863. Thus in 1908 the export side was $4,787,731 above the imports, while in 1907 the balance was only $2,331,339 and in 1906 only $397,677. There is no other European country which shows such wonderful development of the motor export business. During 1908 the Italian manufacturers sold to other countries 1,629 chassis of a total value of $5,647,369, the average price thus being $3,466, while during the year 1907 only 1,253 chassis were exported, their total value being $4,037,062 or about $3,221 per chassis. The importation of foreign chassis into Italy has been decreasing very strongly. In 1908 only 348 chassis were imported as against 716 in 1907.

The best customer of Italy in 1908 was Great Britain, which took 403 of its chassis as against 125 in 1907. France is second on the list with 288. This is, however, ninety fewer than in 1907. Germany also bought fewer in 1908, the total being 165 against 224 in 1908. Two South American countries, Argentina and Peru, have added their names to the list of purchasers of the Italian brand of chassis. They imported 152 chassis, while in 1907 they bought only fifty-two.

The American makers of motor cars did not fare well with their efforts to sell the Italians in 1908. Only four cars are recorded to have been received from the United States, while the year before the number was fifty-two.

### GREAT BRITAIN REPORTS

London, May 10—The motor business in Great Britain thus far this year shows a most encouraging condition for the home concerns. Not only are the exports greatly on the increase but the imports of foreign-made finished as well as unfinished products are not as strong, in proportion, as the exports. The government statistics for the first 2 months of 1910 shows the total value of the complete cars, chassis and motor car parts which have been exported from Great Britain to total $2,452,240, while for the corresponding period in 1909 the total was only $1,406,240, or a gain of $1,046,000 this year. The imports of these articles from foreign countries total in value $5,490,040 for the first 2 months this year, as compared with $4,764,215 in 1909.

# The Readers'

**EDITOR'S NOTE—In this department Motor Age answers free of charge questions regarding motor problems, and invites the discussion of pertinent subjects. Correspondence is solicited from subscribers and others. All communications must be properly signed, and should the writer not wish his name to appear, he may use any nom de plume desired.**

## TIRES FOR COUNTRY ROADS

SHELBINA, Mo.,—Editor Motor Age—Will Motor Age through the Readers' Clearing House bring to the attention of the tire manufacturers the need of a tire for country roads? The tires as now constructed are given every attention as to the tread, but the sides of the casing, which rub every rut, receive little more than a suggestion of rubber. The result is that after only a few hundred miles of service the webbing is exposed on the sides while the tread is almost as good as new, thus necessitating the removal of a lot of good rubber in order to repair a small part of the tire by retreading. The tires as now made are certainly all right for city use, but a very poor article for average country roads.—C. L. Reid.

## MISSES ON ONE CYLINDER

Alameda, Sask.—Editor Motor Age—Through the Readers' Clearing House will Motor Age kindly advise me further regarding my Reo car which misses in one cylinder. In Motor Age, issue March 31, I was advised as follows: "Your best policy is to drill a $\frac{1}{16}$-inch hole in the bottom of the pipe leading to the rear cylinder." The holes referred to were in the pipe when I fitted it to the cylinders and they have not become closed up in any way.—J. J. H.

Difficulties such as yours have been met with by others who have endeavored to fit carbureters other than those supplied by the Reo company; this may be the cause of your trouble. The Reo carbureter for two-cylinder motors has given satisfactory service under the condition mentioned when other types have failed. Assuming that the contacts and terminals of the timer and coil are in good condition and that the compression is equally good in both cylinders, it may be that the joint between the inlet pipe and the cylinder is not as tight as it should be; the gasket may be defective and air may be getting in so as to destroy the mixture.

## LOCATING AN ENGINE TROUBLE

Port Gibson, Miss.—Editor Motor Age—I have a 4-cylinder Winton K car, and am troubled with the engine missing in the fourth cylinder at slow speeds. I have ground valves, adjusted the carbureter, and cleaned the timer, but still it misses. The car is fitted with a Stromberg carbureter. At from 12 to 18 miles per hour, the motor runs smoothly, but at 20 miles and over it misses again. I lately used Presto carbon remover in the cylinders. A good dosing of kerosene helps for about 10 miles, but after that the motor misses again. Will Motor Age tell me what is the trouble? I see very little in these columns on tire troubles and what is best to do, and feel that some letters of personal experience would be a help.—L. Briscoe Allen.

Your trouble is characteristic of a weak valve spring or a lack of oil on the automatic inlet valve of the fourth cylinder. However, similar symptoms are present when a coil is defective, and when there is an air leak in the inlet pipe near or at the point of its attachment to the cylinder. Motor Age would advise that you put a drop or two of cylinder oil on the inlet valve, see that it works freely, and test for results; then, if the missing is still present, switch the coils around in the case, that is, exchange the one of the fourth cylinder for one of the other coils which you know is working properly, and test again. To test for an air leak in the inlet pipe, let the motor run, and either squirt a little oil around the crevice between the inlet pipe and the cylinder and see if it sucks it in; or better still, wrap a cloth around the pipe at this point which is saturated with gasoline. If there is a leak, the motor will begin to hit on four cylinders regularly while the saturated cloth is in place, but will miss again when removed. If this is the cause of the trouble, it will be necessary to tighten the joint at this point or fit a new gasket.

## MAY BE THE WEATHER

Griswold, Ia.—Editor Motor Age—Will Motor Age in the Readers' Clearing House answer the following: I have a four-cylinder 30-horsepower Queen car and had a new model F Schebler carbureter fitted last winter. The car seems to run fine and have plenty of power, but when it has stood a couple of hours I cannot start without priming once, and sometimes even three or four times. Will Motor Age inform me what can be done?—Subscriber.

Your trouble is a very common one and most probably will fade away as the weather becomes warmer. There is no remedy except to redesign the motor or some of its features, or to keep on priming. Almost all motors are difficult to start when cold and some more so than others. There is a method of priming, however, which often is more efficient than injecting gasoline into the cylinders. This consists in providing a cap made from a piece of wire screen and covered with coarse cotton or woolen cloth, which may be temporarily slipped over the air inlet of the carbureter and saturated with gasoline, or a ball of waste covered with a similar material may be saturated and slipped into the air-inlet of the carbureter; it being necessary, of course, to remove them immediately the motor is started.

## WHY CRANKSHAFT BREAKS

Wyoming, Pa.—Editor Motor Age—Will Motor Age through the Readers' Clearing House explain why the crankshaft on a 1906 model E Locomobile should break running about 10 miles per hour on high gear down a slight grade and a paved street? I sent it to the manufacturers and they said that there were no flaws to be found. Is a five-bearing crankshaft considered better than a three?—Broken Crankshaft.

Why the crankshaft broke under the favorable conditions above mentioned is difficult to answer definitely. The shaft was most probably broken some time before the parts separated. This often has happened. A shaft may be subjected to a very severe strain, so severe, in fact, that it is cracked; but having overcome the resistance without breaking, the car will run under favorable conditions for a long time afterward; every little strain thereafter, however, tends to enlarge the crack and weaken the shaft, till at last it gives way. This most probably is what happened to yours. You say you were going down grade, and it is reasonable to suppose that the final strain on the crankshaft came in the ascent or approach of this down grade.

Both the three and five-bearing crankshafts have their respective advantages: A three-bearing shaft simplifies crankshaft design and construction, and three bearings are easier to adjust than five; and it is claimed that the five-bearing shaft is more rigid and wears better. The three-bearing crankshaft is the most popular at the present time. Cases are on record where a car has been run into a garage at night apparently in good condition, but in the morning it was discovered the crankshaft was broken so that the motor could not be started.

## PREVENTING CLUTCH SLIPPING

Stillwater, Minn.—Editor Motor Age—I have a 1909 Premier model 30 with a multiple-disk clutch. In changing gears it slips and will not take hold. What will prevent it from slipping? Should it be run dry or with oil?—A. G. Triebel.

The slipping most probably is due to the fact that you are using either too much or too heavy a grade of oil. Motor Age would advise that you drain the old oil from the clutch, put in about ½-pint or a pint of gasoline, put the gear-shifting lever in the neutral position, start the motor, then work the clutch in and out for a few minutes. After this drain the gasoline from the clutch, put in a little kerosene, and try the car. If it still slips, look to the adjustments, see there is nothing which prevents the pedal from coming all the way back; it might bear on the edge of the foot-board underneath. If the adjustments are correct, there will be

# Clearing House

**EDITORS' NOTE—To the Readers of the Clearing House columns: Motor Age insists on having bona fide signatures to all communications published in this department. It has been discovered that the proper signature has not been given on many communications, and Motor Age will not publish such communications, and will take steps to hunt down the offenders of this rule if it is violated**

no more slipping, but there might be a tendency toward taking hold too severely; in this case, add oil to the kerosene in the clutch till the action is easier. Light cylinder oil generally is used in multiple-disk clutches, with a mixture of kerosene to thin it down when the clutch slips.

## GLIDDEN ROUTE SUGGESTION

Bardstown, Ky.—Editor Motor Age—I want to offer a suggestion in regard to the route of the Glidden tour. The route as laid out now does not go to Hodgenville, Ky., near which town is located the Lincoln memorial farm, and as it would be only a short distance out of the way, I think it would be better to go to Hodgenville, then out by the Lincoln memorial building, which is about three squares from the road, and then to Buffalo, which is included in the present route. This route would give the non-contestants a chance to stop and go through this building and then catch up with the main body later. R. L. Jones, secretary of the Lincoln Farm Association, wrote the contest board of the A. A. A. that he would like to have the tour pass through this national shrine. The song, "My Old Kentucky Home," was written near here at Federal Hill, and we would like to have the Gabriel Horn Mfg. Co., Cleveland, O., enter the big Gabriel horn so that this song can be played on passing through this state. Bardstown is on the south.—Claude W. Wilson.

## PROBABLY AN AIR LEAK

Waukegan, Ill.—Editor Motor Age—Will Motor Age in the Readers' Clearing House express an opinion as to what might cause the following: I regulate the carbureter so that the rear cylinder fires regularly but the front one lays down almost entirely on the same mixture. When I increase the fuel the front one picks up while the rear cylinder quits. I test each cylinder by holding the vibrators on the coil. Does it make any material difference in the efficient working of a carbureter when the auxiliary air valve flops around instead of seating perfectly? When it does not seat squarely, air passes the outer rim in addition to that which regularly passes through the center opening.—Earl G. Alden.

The symptoms indicate that there is an air leak in the inlet pipe somewhere at or between its connection with the carbureter and the front cylinder of the motor; so that when the mixture from the carbureter is enriched, the air leaking into it before it reaches the front cylinder makes it just right for that cylinder, while it is too rich for the rear cylinder. On the other hand, when the mixture in the carbureter is cut down so as to be right for the rear cylinder, the air leaking into the mixture taken into the front cylinder and it is too weak. A difference in the compression due to a leaky valve in one of the cylinders might also be the cause of your troubles; and unequal adjustment of the vibrators of the coils often causes a motor to act up in a similar manner. Turn the motor over slowly by hand and see that the compression is equal in both cylinders. See that the contact points of both vibrators are clean and smooth, and that the points of the spark plugs are equally far apart. If you had given the name and type of your motor and carbureter your inquiry, perhaps, could be more effectively answered. The only trouble that might be caused from an ill-seating auxiliary air valve would be a failure of the motor to slow down or run slowly without missing.

## COLOR OF TIRE CASES

Washington, D. C.—Editor Motor Age—Through the Readers' Clearing House will Motor Age kindly answer the following questions: In a certain New York paper wherein the subject of preservation of rubber is put before the reader, it is stated that a cover of white, tan or gray is of more service than a black casing, for the simple reason that black draws more heat than white. Is this true? In the case of an auxiliary tire should it be inclosed in a light cover in lieu of a dark one?—Wm. E. Naughton.

The theory is correct. But as to its application to the color of the spare tire casing covers, it would be like splitting hairs. One side of a car is rarely exposed to any strong sun for any great length of time under ordinary conditions, and if it is moving the currents of air about the tires secured on the running boards or at the rear will keep them comparatively cool. The subject is worthy of experiment, however, and Motor Age would be glad to hear from any having experience along these lines.

## MAY BE INTAKE VALVE

Farley, Mass.—Editor Motor Age—I have a model F Buick touring car which backfires and causes one cylinder to be weak in compression. What is the reason for the back firing?—A. C. B.

It appears as if the intake valve of the troublesome cylinder is not seating properly, thereby causing the compression to be poor, and perhaps permitting ignition of the gases in the intake pipe and backfiring in the carbureter. The intake valve may be sticking in the guide, the seat may be carbonized or warped, the head may be cracked, or there may not be sufficient space between the valve-stem and the rocker-arm, so that the valve is prevented from closing tightly, in which case adjustment of the push-rod would be necessary. A defective gasket between the valve-cage and the cylinder might also be the cause of the trouble, and if there is no gasket at this point, it might be well to fit one of the copper-asbestos type or grind the cage onto its seat, as well as the valve on its seat. It also would be well to examine the timer and see if all connections and moving parts are secure and not worn.

## RUNNING ON THE RIM

Decatur, Mich.—Editor Motor Age—What is the most practical device for protecting a rim when one feels obliged to run on it to save casing till tube can be repaired? Some time ago I saw advertised a wood rim in sections for clamping on. Is it a success? Have thought of having a piece of rope the proper length to go around the wheel and lace ends together. Has this been tried?—A. E. Lawrence.

Motor Age has not seen the sectional wood rim to which you refer, but the rope idea has been employed with fair success. Two pieces of 2 or 3-inch rope, with means for lacing the ends together would be better than one piece long enough to go around the wheel two or three times, for they would fit the rim very nicely, and there would be no crossing of the rope. Thus bumpy traveling is avoided and the rope would last longer.

## INCREASING THE SPEED

St. Anthony, Idaho—Editor Motor Age—I have a 20-horsepower runabout, double-chain drive, which has plenty of power but not enough speed. What is the best method to make the gear higher? I propose to get a larger gear wheel for the countershaft. What difference would each tooth in this wheel, increased in number, make in the speed?—M. M. Harshbarger, M. D.

The best way to increase the speed of your car is to fit sprockets of a larger diameter to the jackshaft and add the necesary links to the side chains. Just how much of a reduction in gear ratio thus obtained, that can be efficiently handled by your motor, can be determined only by experiment, or by consulting others who have experimented in a similar manner with a car of the same make. If you had given the name of your car, your inquiry might be more definitely answered. As for the difference in speed obtained by changing the diameters, or number of teeth of the gear wheels or sprockets: accordingly as the driving and driven gears are of equal or unequal diameters, so are equal or unequal velocities produced. For example: if the sprockets or

driving gears on the jackshaft of a chain-driven car were of the same size as those on the road wheels, the wheels would revolve at the same speed as the jackshaft; and if the sprockets on the jackshaft were one-half the size of those on the wheels, the wheels would revolve half as fast as the jackshaft; therefore, divide the greater diameter, or number of teeth by the lesser diameter or number of teeth and the quotient is the number of revolutions the lesser will make for one of the greater. Assuming that a certain speed of the jackshaft of your car can be maintained, if you fit larger sprockets to the jackshaft, the rear wheels will revolve faster and more speed will be obtained. However, if your motor is not powerful enough to cope with this decreased gear ratio, the original speed of the motor and jackshaft will be reduced and there will be no gain in speed. With the favorable conditions you mention, though, you should be able to gear up your car a little with beneficial results.

## BUICK RACING TEAM

Commerce, Texas—Editor Motor Age—Will Motor Age through the Readers' Clearing House kindly answer the following questions?

1—Who compose the Buick racing team this season?

2—What was the order in which the competing cars finished in the Savannah-Jacksonville tour?—A Reader.

1—The Buick racing team now is known as the General Motors Co. team, with Louis Chevrolet and Robert Burman as the drivers. As Motor Age understands it, these two men will drive cars of concerns in the General Motors group.

2—In the Savannah-Jacksonville reliability, class A prize was won by a Stevens-Duryea; class B by a Cole; class C, Maxwell and Hupmobile tied.

## STARTING ON COMPRESSION

Hopkinsville, Ky.—Editor Motor Age—I have an Overland model 38, four-passenger car and am asking for information for starting the engine on the spark. When I turn the switch on the batteries, and push the button on the spark coil, the spark plugs spark, but the engine won't even kick over, although it is easily cranked. Always, in stopping the engine, I speed it up some, then cut off the spark and open the throttle; this causes it to suck in a supply of gasoline, and then it is easily cranked; but it won't start on the button. The engine has fine compression, new batteries and spark plugs. What is my trouble, and can I arrange to start on the button?—Claude J. Sisk.

Starting on the spark is not positive on any car, and although there are some makes of motors that will hold compression for several hours and invariably start on the spark when the motor is warm, it is not possible for all motors. Much depends upon the fit of the pistons and rings in the cylinders, and the design and balance of the motor. Balance is an important feature. If a motor is balanced so that the motor will generally stop with the throws of the crankshaft at an angle of about 45 degrees from the vertical to the horizontal position, starting on the spark is greatly facilitated, for at this position there is a charge in one cylinder which, owing to the position of the piston, half way down in the cylinder, it is held under moderate compression, and there is another charge in the following cylinder which is also under moderate compression, and being thus held under moderate compression there is less liability of leakage. Therefore, if the timing will permit the ignition to take place in the proper cylinder, the charge in the cylinder which is on the explosion stroke will fire with enough force to further compress the charge in the following cylinder and carry the piston in that cylinder over the firing center, after which the motor should run along in the regular way.

## HILL-CLIMBING ABILITY

Stewartsville, Ind.—Editor Motor Age—Which will take sand and hills better, a car weighing 1,500 pounds with 20 horsepower, or a car weighing 3,000 pounds, with 30 horsepower? It is claimed by some that the smaller car is the better on account of having less weight to carry. Is this correct?—L. J. Demberger.

Theoretically, the light car should take the hills and sand better than the heavier and more powerful one by 25 per cent; but the comparative efficiency of the transmission of power to the rear wheels, the size of the tires and wheels, and the gear ratios, must be considered in making such a comparison. With everything equal in each, each horsepower in the smaller vehicle cares for 75 pounds, whereas in the heavier car each horsepower has to transport 100 pounds. Favors would rest with the 20-horsepower vehicle.

## WANTS LARGER MOTOR

New York—Editor Motor Age—I have a good, sturdy, shaft-drive runabout frame, 109-inch wheelbase, with a 35-40-horsepower engine installed. I want plenty of power and speed, and my desire is to replace this engine with a higher powered one, say 50 or 60-horsepower.

1—Would the frame stand the increased horsepower, and would I need a new transmission, radiator and differential?

2—Will Motor Age suggest some type of engine and gearing?

3—Where is the speed obtained in a 60-horsepower motor?—Art J. Shafer.

1—Your scheme hardly is practical. The frame might stand the increase in horsepower, but would not be sufficiently strong to support the heavier weight of the larger motor. The transmission gearing and rear-axle mechanism also would have to be changed for mechanisms of heavier and stronger construction, in order to deliver the increased power of the motor to the driving wheels. In some cars, however, especially in assembled cars, the transmissions, rear-axle mechanisms and motors are not always properly proportioned with regard to strength and power, and often a motor of 30 horsepower is installed with a transmission gearing that is designed to go with a 40-horsepower motor, and in such cases a change such as you suggest could be made if a motor was obtained which was more powerful but of the same or nearly the same weight and size.

2—It would be advisable to consult the manufacturer as to the relative strength of the transmission gearing, which includes the gearset, drive-shafts to and from and including the bevel-gear and differential mechanisms, and the universal joints therein. Then consult the manufacturers of motors, which may be found in the advertising columns, regarding sizes, weights and power of their motors.

3—By installing a more powerful motor, the gear-ratio between the motor and the rear wheels may be decreased so that the speed of the wheels will be greater in proportion to that of the motor; hence, with the ability of the more powerful motor to maintain a high speed the speed of the car would be increased.

## FORD CYLINDER SIZES

Port Townsend, Wash.—In the account of the Los Angeles races the Ford dimensions are given as 3¾ by 3¾. Is this the same car as cataloged with 3¾-inch bore and 4-inch stroke?—Reader.

The Ford which competed at the board track meet had bore and stroke of the dimensions given, namely, 3¾ inches.

## WELDING OF SPRING LEAVES

Chicago—Editor Motor Age—Replying to a communication from Reader in Motor Age, issue April 21, in the Readers' Clearing House columns, regarding welding of leaves on springs, would say that in our opinion a weld is only to be thought of as a temporary expedient. A weld is seldom, if ever, as strong as the original steel. The strain upon the springs under an automatic demand all the strength there is in the plate at its best, and it cannot be expected that a weld will last very long. As the inquirer is in the city of Chicago, he easily can take his springs to the spring factory in his city. He will find its address in your advertising columns. A spring-maker never welds a plate.—F. H. Tuthill.

# Legal Lights and Side Lights

ANOTHER legislature checked in without any change in its motor law—little Rhode Island, which for a time threatened to upset the equanimity of motor car drivers in that commonwealth. During the session there were several amendments introduced which were not of vital importance and which would not have materially changed the law even if the solons had seen fit to pass them. However, the legislature wound up its spring meeting by leaving the law of 1909 the same as before.

The body of the Rhode Island law was constructed in January, 1908, but in the following year there were several amendments made which did not change the tenor of the measure to any great extent. Rhode Island is using the conventional statutes most of the way through its bill, but there are two or three points of difference noted in the paper. One good point is that while the state board of public roads has the power to suspend or revoke a license, the licensee, who has been served with notice of the suspension, has a right to appeal to the superior court from the decision of the state board. Rhode Island also forbids cities and towns making any laws that will affect the speed limitations, except that the city or town councils can exclude motor vehicles from certain roads in their respective towns, provided that such roads excluded shall not include state or main highways leading from town to town. As in the case of several other states, Rhode Island demands that every motor vehicle shall be provided with a lock, key or other device to prevent it being set in motion, and that the car cannot be left unattended without the operator first locking or making fast the vehicle. In the matter of the use of tire chains and anti-skidding devices, Rhode Island forbids the use of a chain upon anything but natural dirt, asphalt, cobble, Belgian block and vitrified brick pavements, except in case of slippery roads, when such safety precautions are necessary.

### Cars Given as Bail

Another good point in connection with the measure is that a motor vehicle may be tendered as bail in case of the arrest of the driver. Rhode Island adopted the registration by horsepower as far back as 1908, which makes it one of the pioneers in this respect. Its fees are $5 per year for cars of 20 horsepower or less, $10 from 20 to 30, $15 from 30 to 40, and $25 for over 40. A commercial motor vehicle, regardless of horsepower, is charged $2, while the manufacturer's license fee is set at $50. Motor cycles also have to pay toll, the charge being $1 per year. It is also provided that every manufacturer, dealer and garageman must keep a record of every car which enters or leaves a garage, the numbers being recorded in a book which is open to the inspection of the state board of public roads or the authorities. This measure allows Rhode Island to keep a close watch on the movements of motor vehicles, and also often aids in the running down of a stolen car and the detection of the thief. A non-resident has the run of the state without having to pay a registration fee provided he carries his own state tag. A non-resident, however, cannot use the state highways more than 10 days in any one calendar year.

### Missouri Has Been Tamed

Missouri once was notorious for its motorphobistic tendencies, but now all this is changed. It used to be that each county in Missouri demanded a separate tax from every motor vehicle that passed over its roads, the result being that if the tourist went through each county in the state he would have to pay a couple of hundred dollars in the way of registration fees. Now Missouri lets the motorists down easy by asking the reasonable sum of $5 per year for the use of its highways, this money going to the good roads fund. At the same time the car is registered the operator of it also must take out a driver's license, for which the fee is $2. No one under 18 years of age can secure such a badge. Non-residents are exempt from this clause in the law, immunity being granted for 20 days, after which time it is necessary to go through the same routine as a native of Missouri. The speed laws of the state set the limit at 15 miles an hour, except within the confines of the city or village, where it is cut to 8 miles an hour in the business portions and 10 miles elsewhere. This law has been on the books since March, 1907.

While the city of Denver has an admirable set of regulations governing motor traffic to make up for the lack of its state law, its sister city, Colorado Springs, has a law which contains several good points. It was drafted in coöperation with the Colorado Springs Automobile Club, and because of this consideration is given the motorists. The speed inside the city limits is set at 12 miles an hour, as is the case in Washington, D. C., while outside the fire limits 18 miles an hour is the maximum. That it often is necessary for a physician to travel faster than this is recognized, and it is ordained that doctors answering emergency calls may open the throttle still wider. The physicians, however, must secure a permit to answer emergency calls at a pace faster than the legal limit, which permit is granted by the city clerk. At the same time the doctor agrees to exercise a higher degree of care to avoid accidents when traveling fast, and has to show his permit in case the police so demand. That this liberality may not be abused, it is held unlawful for any person to drive a motor car or motor cycle within the city limits on which a red cross symbol is displayed unless a permit has been secured from the city clerk. The conviction for such an offense means a fine not exceeding $200. The owner of a car is not held liable for the sins of others who may be using his machine in case he can prove that he was not operating it at the time the law was violated.


Operators of motor cars must obtain their licenses from the city. A visitor must register the number of his car with the chief of police upon his arrival in the city, and he can operate his car for 3 days, at the end of which time, upon payment of 25 cents, he has 30 days more of grace. Operators desiring to secure a license have to appear before a board of examiners, one of which is a member of the Colorado Springs Automobile Club. The fee is a small one, the city asking only 50 cents a year for the use of its roads. The city also insists that motors be stopped while standing on the street without an attendant in charge, and refuses to allow the muffler to be cut out except when a car is climbing a grade or hill.

### No Oklahoma State Law

Oklahoma hasn't any state law, it being up to each city or town to make its own regulations. Oklahoma City, that marvelous metropolis of the southwest, and through which the Glidden tour will pass this year, is most lenient to motorists. Its motor law is confined to a set of driving regulations and a demand that lights be carried on the front and rear of the car at night. The card of driving regulations contains ten clauses, and on the back of it is a diagram which shows clearly the right and wrong way to drive a vehicle upon the city streets. These driving regulations are of the conventional sort. A speed of 8 miles an hour between crossings and 4 miles an hour at crossings is allowed in the business districts, while in the resident section this can be increased to 15 miles an hour, except at crossings, where only 6 miles an hour is permitted.

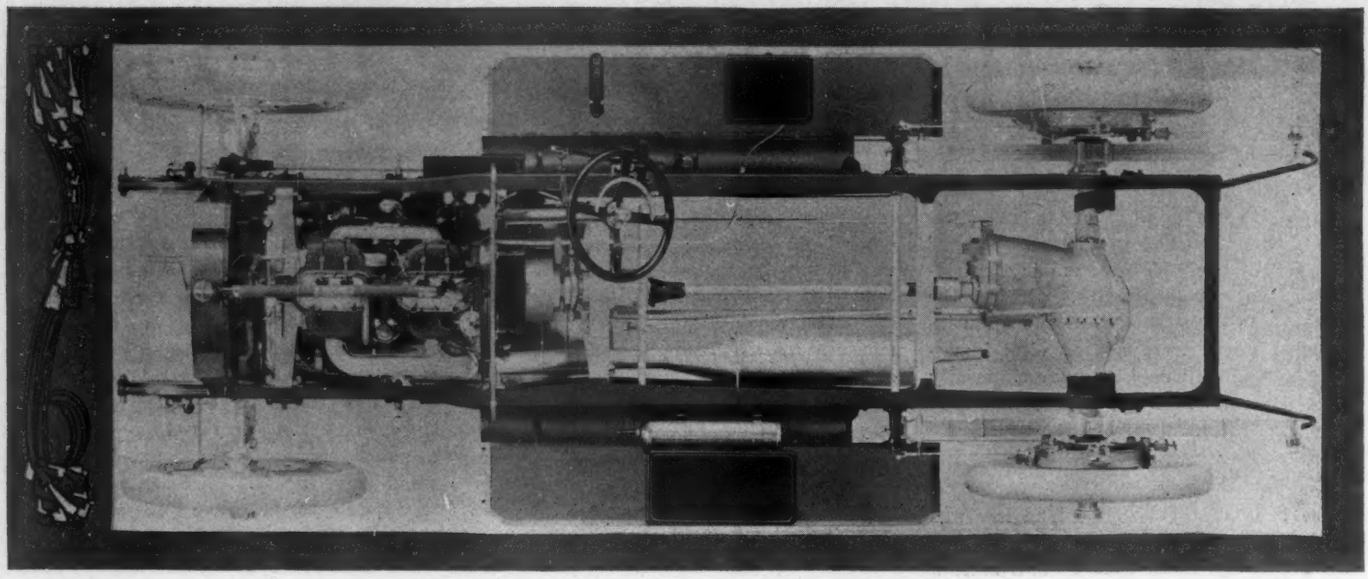


FIG. 1—CHASSIS OF PACKARD 30 FOR 1911

# Two Packard Models Announced

IN pursuance of the policy it has followed since its advent into the four-cylinder field 8 years ago, the Packard Motor Car Co. for 1911 announces two models known as Packard 30 and Packard 18, the chassis construction of which are practically identical with those of the present year, except for those detail improvements and refinements which, owing to the experiences of a year, the engineering and executive departments have deemed worthy of incorporating in the car for next year. Leaving the chassis, however, the 1911 Packard car from the body point of view is quite different in that doors have been placed for the front seat passengers on all touring cars, open cars, runabout and close-coupled models. In the landaulet and limousine styles the fore-door type is being manufactured in large quantities and with the exception of the model 18 landaulet and limousine and the model 30 limousine and landaulet made without fore doors, all models are furnished with a front-seat door. From a body point of view the Packard 1911 line is particularly comprehensive, the 30 being manufactured with touring car, phaeton, close-coupled, runabout, limousine, landaulet, fore-door limousine, fore-door landaulet and coupe types, and the Packard 18 with open car, close-coupled, runabout, limousine, landaulet, fore-door limousine, fore-door landaulet and coupe. On all the Packard 30 models the chassis details are the same with the exception of the runabout, on which a shorter wheelbase is used as well as a different location of the motor, a different angle to the steering column and other detail alterations consequent upon the runabout design.

One important feature in connection with next year's Packard is the standard equipment of demountable rims on all models. This year marked the entry of certain manufacturers listing cars with demountable rims, and for next season

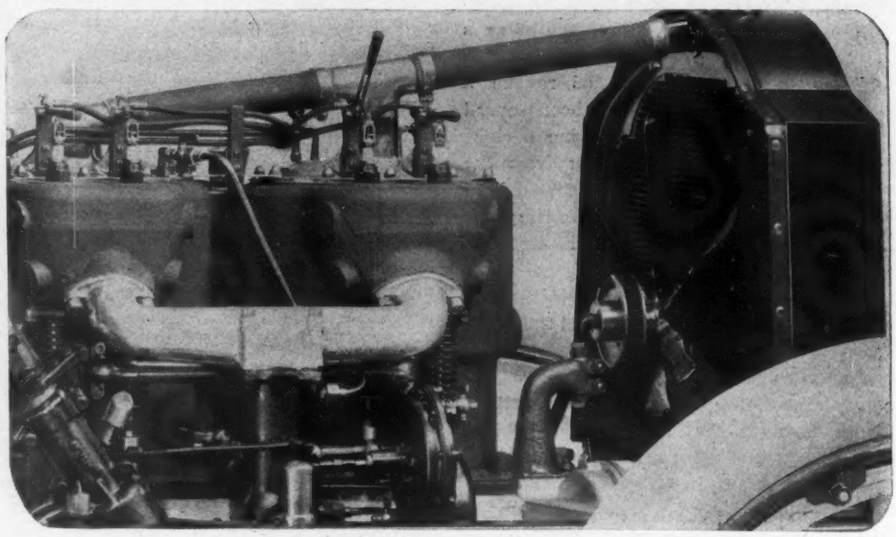


FIG. 2—RIGHT SIDE VIEW OF PACKARD POWER PLANT

Continental demountables will be standard equipment on these cars. As in the past, so next year there will be several standard Packard colors for open cars and also for enclosed cars. On open cars the body and door panels are Packard blue striped with gray and the running gear parts below the frame gray with black stripings. It will be remembered that this year the standard painting colors are blue and cream yellow.

**The Packard Chassis**

As illustrated in Fig. 1, the Packard chassis remains practically the same as this season. The motor with 5-inch bore and 5½-inch stroke, A. L. A. M. rating 40 horsepower, but rated by the Packard company at 30 brake horsepower at 650 revolutions per minute, is a four-cylinder design with T-head twin castings, the intake valves being in compact offsets on the right, the exhaust similarly located on the left. The cylinder sizes are the same as used at present on the Packard 30 and also on the 18, the bore and stroke in the latter being 4 1/16 by 5⅛ inches with a Packard rating of 18 brake horsepower at 650 revolutions per minute and an A. L. A. M. rating of 26.4 horsepower. The three-part crankcase design, which has been used for several seasons, is continued, the uppermost section, taking its support from the side members of the frame, forms the engine base, and the crankshaft bearings are held between it and the middle sections. The bottom section, playing the role of an oil well, is readily removable for inspection of the lower connecting-rod bearings, and when removed these bearings and the camshaft bearings may be adjusted without interfering with the crankshaft bearings. All three parts of the crankcase are aluminum alloy castings which are made in the new Packard foundry opened some months ago. Between the two supporting arms on the right and

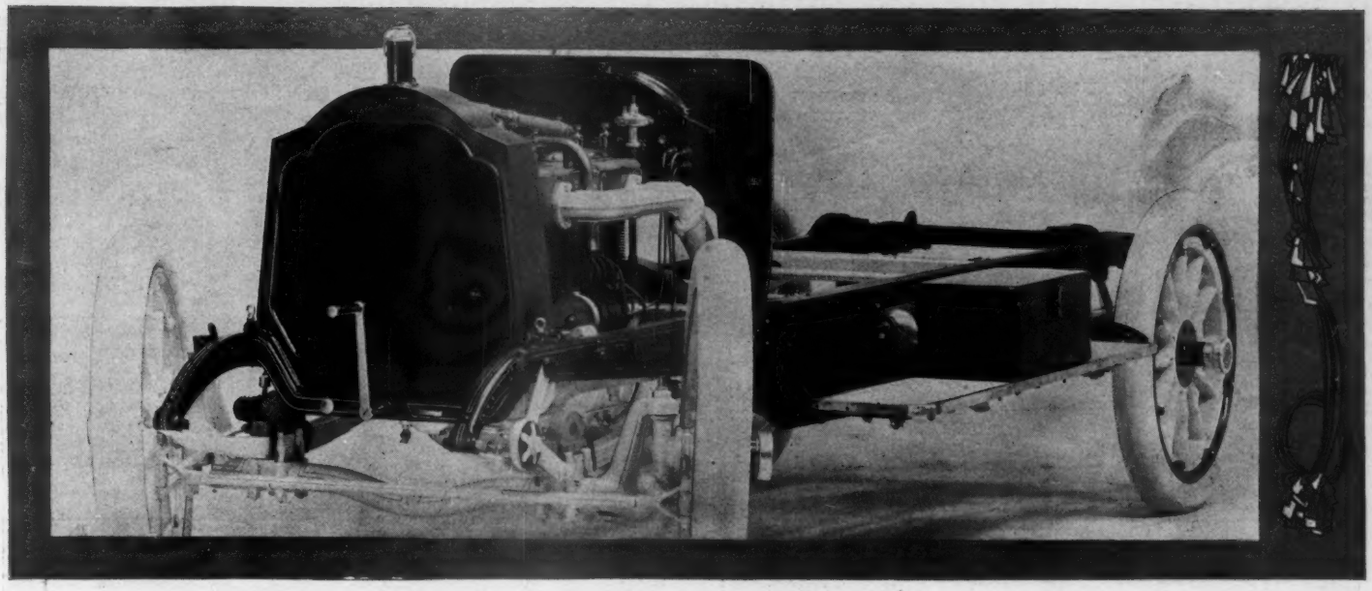


FIG. 3—A PERSPECTIVE OF PACKARD 30 CHASSIS FOR 1911

# As Offering for the Season of 1911

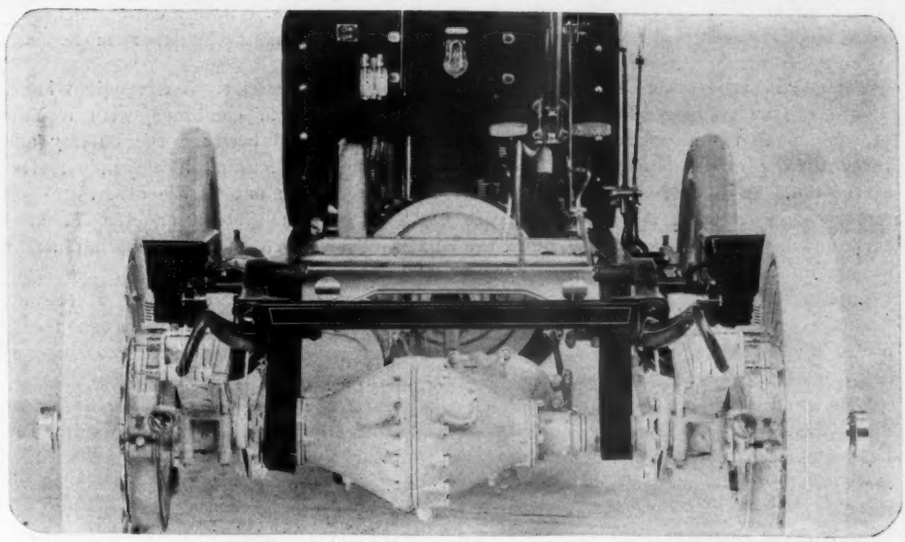


FIG. 4—THE PACKARD 30 CHASSIS AS SEEN FROM BEHIND

left side of the upper portion of the crankcase is an integral web, which eliminates the necessity of a mud apron beneath the motor and also forms a support for the magneto and other motor accessories.

Passing to the cylinders, another example of Packard policy for next year appears in that these castings are all being manufactured in the new Packard foundry instead of being imported as in previous years. This advance in home manufacture is one which is exhibiting itself in many of the big factories of the country this year, the Packard company using a grade of imported gray iron for these castings and pistons as well. It is understood that the Packard company for next year will go even further in the matter of home manufacture in that departments for the manufacture of the wheels for their cars are already installed. The crankshaft, carried on three bearings, has all three supported by heavy webbing in order to resist any springing tendency which would result in mal-alignment.

The Packard carbureter system, which has passed through several seasons without any alteration, is scheduled for the 1911 market in practically its present form. This carbureter, entirely a Packard product, is unique in America in that the hydraulic governor control is continued, the role of this governor being to maintain steady motor running and compensate for varying roads within limits of volitional throttle setting. The details of this hydraulic control have been previously given in Motor Age, but for the benefit of those new readers it may be stated that the governor consists of a diaphragm in the water or cooling system of the car. The water pressure from the pump bears upon one side of this diaphragm and the other side is in connection with the throttle, the theory of operation being that with higher motor speeds the water pump generates a higher pressure, which, bearing upon one side of the diaphragm, operates through the connection, reducing the throttle opening. In other respects the Packard carbureter has several unique features. One is the wedge-spring adjustment of the auxiliary air valve. This valve is a conventional poppet type with spring control, but the tension of the spring holding the valve seating may be adjusted from a lever on the dash, this lever operating a wedge which is interposed between the valve housing and a seating for the valve spring, so that as the thicker part of the wedge is inserted the tension of the spring is increased. One other detail of the Packard carbureter is the waterjacketing of the vertical part of the manifold from the carbureter union to where it joins the horizontal pipe leading to the front and rear cylinders. It is well known in carburation that where provision is not made to maintain a high temperature around the mixing chamber that condensation will often occur in cold weather before the explosive gases reach the cylinders. The Packard company has guarded against this by waterjacketing the vertical portion of the manifold. This policy has been pursued for several seasons, and during the present year one other large American maker has introduced the same waterjacketing system. Apart from these peculiar characteristics the Packard carbureter might be described as a conventional type with a nozzle free from a needle valve control; a separate float chamber, the float in which is loose on its stem and controls the needle valve through a pair of levers, and a shutter valve for controlling the main air entrance and by which starting is greatly facilitated in that with the normal air intake closed a greater pull is exerted on the gasoline in the spraying nozzle and a rich

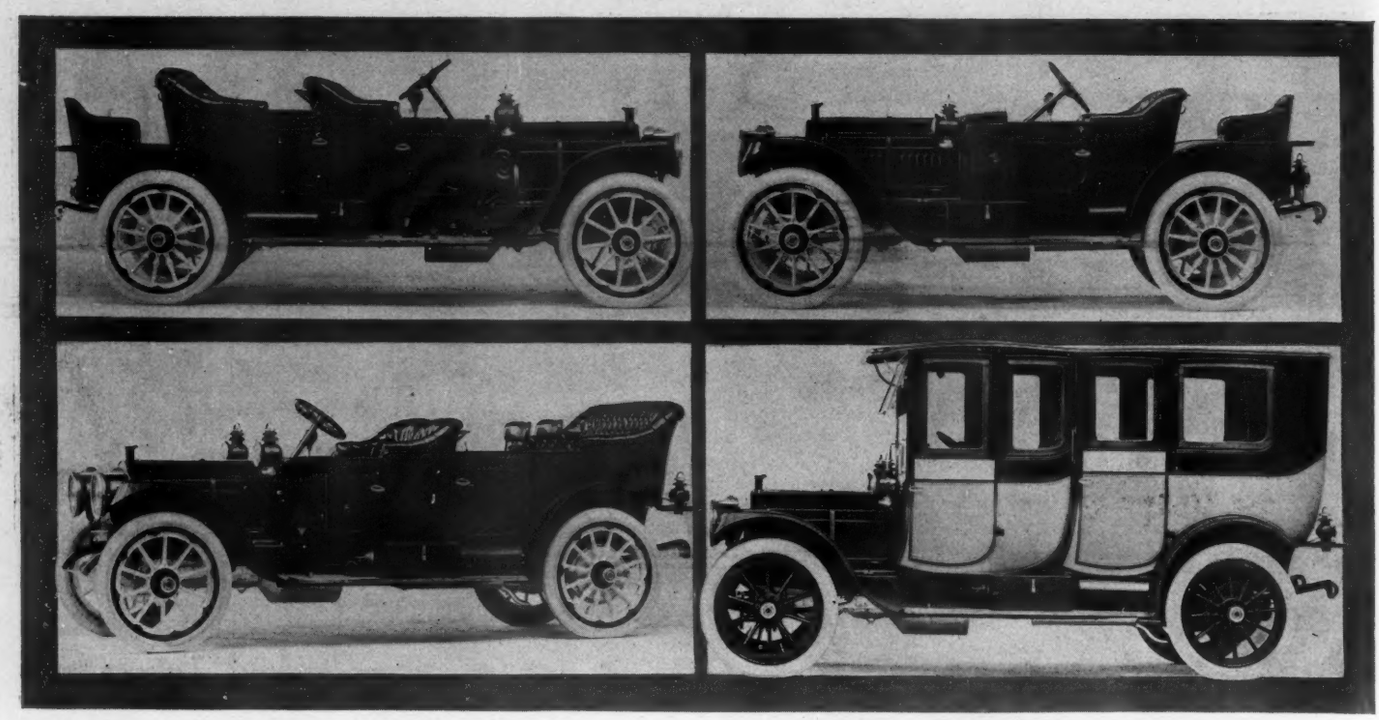


FIG. 5—PACKARD 30 CLOSE-COUPLED WITH RUMBLE SEAT
FIG. 6—PACKARD 30 TOURING, WITH FORE DOORS
FIG. 7—PACKARD 30 RUNABOUT WITH RUMBLE SEAT
FIG. 8—PACKARD 30 LIMOUSINE, WITH FORE DOORS

mixture assured. In connection with the carbureter attention is drawn to the gasoline supply system, which on all cars except the runabout phaeton and close-coupled types the gasoline is in a copper tank under the front seat. In the 30 models a 20-gallon capacity is furnished and 18 gallons in the model 18. In both models a 5-gallon reserve is insured by means of a three-way gasoline valve in the bottom of the tank. For ordinary use the gasoline is drawn through a standpipe, the top of which rises sufficiently above the bottom of the tank so that when the gasoline falls to the level of the pipe and no more will flow out there still remains 5 gallons, which may be withdrawn through an opening on a level with the base of the tank, which opening is guarded by the three-way valve already mentioned.

**The Lubricating Scheme**

In describing the Packard lubricating system from the motor the word "splash" practically answers the question. The oil supply is a reservoir in the form of a vertical cylinder, mounted between the cylinder pairs on the left or exhaust side. On the model 30 this reservoir has 1-gallon capacity and on the model 18 2½-quarts. The oil is taken from this tank and by means of a double-plunger pump two flows are delivered to the motor, one to the front crankcase compartment and the other to the rear. The oil supply from these pumps is not direct to the crankcase compartments, but through two glass sight-feeds on the dash, so that at all times the driver can see if the required number of drops per minute is passing to the crankcase compartments. The amount of oil fed to either crankcase compartment is adjustable by varying the length of the pump strokes. The stroke of each pump is independently adjustable through an adjusting screw with lock nut at the top. To increase the flow of oil to either compartment it is but necessary to turn down the adjusting screw until the proper oil feed is obtained, after which tightening the lock nut guarantees continuance of such flow. Once the oil supply in the crankcase is in its proper level the dip of the connecting rods creates a splash which fills pockets over the crankshaft bearing, cares for the crankshaft and connecting-rod bearings and lubricates the cylinder walls as well as the piston rings.

**Ignition Plan Characteristic**

The Packard ignition system is characteristic of the Packard car and consists of one set of spark plugs with two current sources—one a Packard-Eisemann low-tension magneto for regular work and the other a storage battery for starting and emergency use. The magneto current is passed through a transformer, or step-up coil, on the dash, and delivered to the spark plugs through a distributor on the magneto, the secondary wiring from the magneto being carried in a copper pipe, which is an innovation for next season. The universally jointed knife switches at the spark plugs are continued. The path of the low-tension current from the battery is through a timer on a vertical shaft at the left rear of the motor, thence to a vibrator coil on the dash, and from this vibrator coil to the magneto distributor and thence to the spark plugs. It will be noted in this system that the primary circuits are independent, but that the secondary circuits and spark plugs are common to both systems. A convenient hand-and-kick switch, combined with a Yale lock, is located between the battery and magneto coils, making it a simple matter to switch from one to the other.

The cooling system on the Packard motor is conventional, including as it does integral waterjackets for the front and rear cylinder castings, a cellular radiator and gear-driven centrifugal pump. The top of each waterjacket is an oval aluminum plate formed integral with which is a T piece used for the hose connections in the return water circuit. The radiator shape conforms to that of this year. Additional cooling is furnished by a belt-driven ball-bearing fan with adjustment furnished for tightening the fan belt. The cooling capacity in the model 30 is 5 gallons and in model 18 4½ gallons of water.

**Transmission System Discussed**

Passing from a consideration of the Packard motor to that of the transmission system, it will suffice in the introduction to state that the dry-plate, multiple-disk clutch introduced this season is continued, and that the gearset still forms a unit with the rear axle and furnishes three forward variations obtained through a progressive action. The dry-plate clutch consists of two sets of plates alternately arranged, one set being faced with a friction fabric and the other set not. The friction fabric is riveted in place on each side of one set of disks. With this clutch no lubricant is required. The gearbox is an aluminum casting forming the right half of the differential housing. As in previous years it is heavily ribbed internally to add strength; the exterior remains plain. The three forward speeds

and reverse are controlled by one lever, this lever moving forward and backward for the three forward variations and into a lateral notch for reverse, it being locked in reverse by a thumb latch. The reverse gear is clashed instead of slid into mesh. Annular ball bearings are used throughout the gearset and rear axle. As Fig. 4 shows, a truss rod is not used in this construction, the casing being of unusually stout material and design.

In passing to a brief resume of the running gear, it will be noted in Fig. 2 that the frame is a conventional design with a slight arch above the rear axle. Springs in front and rear are semi-elliptics, the fronts in both models measuring 40 inches in length and the rear springs on model 18 measuring 50 inches, and on model 30 56 inches. In accordance with its previous practice the front axle is a tubular construction of large diameter and heavy gauge, and the rear-axle tubes are pressed into and riveted within flanged collars, which are bolted to the differential housing. Roller bearings are used for carrying the front wheels. Two sets of brakes are fitted, both acting direct on rear wheel brake drums. The service brakes, which are contracting bands, are pedal applied, whereas the emergencies, which take the form of expanding segments, are controlled by lever. Steering is through a worm-and-sector gear, the sector forged integrally with its shaft and the worm an integral portion with it. Ball-thrust bearings are fitted. Grease cups are provided on all steering connections. The tie rod between the steering knuckles is placed in front of and above the axle. All Packard bodies are sheet aluminum panels formed over aluminum framework. The sheet aluminum is molded to the exact body curves by hammering with arc-faced hammers, the process calling for skilled labor and requiring considerable time, but when completed giving a symmetry of line which would be impossible by ordinary bending of the sheet aluminum. The Packard company manufactures all of its own bodies, including all of its inclosed types, and has specialized on this sheet aluminum construction since the manufacture of four-cylinder types were taken up. No change has been made in the wheelbase of either model, which in the 30 measures 123½ inches for all body types, except the runabout, which is 108 inches, and on the model 18 112 inches, excepting the runabout, which is 102. On all model 30 chassis 36 by 4½-inch tires are fitted all round, and on model 18 34 by 4-inch sizes are general equipment, and the tread is standard on all models.

## PRIMO PLANT AT ATLANTA

A car-manufacturing company, made financially safe for a small start by a capitalization of $200,000, all of which will be paid in before the first car is on the streets, and a company that will make practically all of its parts, save bodies and wheels, has been launched in Atlanta, Ga. It is called the Primo Motor Co., and has the financial backing of a kind hitherto unknown in the attempts to manufacture motor cars in the south. The motors of this new car will be turned out by the Van Winkle Gin and Motor Co., which has a million-dollar plant in Atlanta, another one almost equally large in Gulfport, Miss., and which sends cotton gins 'round the world. The building in which will be made the Primo is located on the Van Winkle property, on the Southern and Western and Atlantic railroad lines, and it is already nearly completed. The building and the machinery cost about $50,000. The assembling room will be built near the motor factory, and will be a building so designed as to allow 200 or 300 cars to be handled a year.

The first car turned out will be a roadster. It will have 110-inch wheelbase, 36-inch wheels, a four-cylinder engine and 25-30 horsepower. It will be a medium-priced car. The motor will be built along conventional lines, with a unit power plant, three-point suspension, multiple disk clutch, three-speed and reverse-selective type transmission, working on imported Hess-Bright bearings. The rear axle will be of the semi-floating type, running on combination ball bearings and Hyatt roller bearings. The front axle will be an I-beam drop forging of conventional type. Two sets of brakes will be provided, external contracting and internal expanding, both acting on a 14-inch drum. The braking surface will be lined with thermoid. The frame will be channel section pressed steel, narrowed 5 inches in front and with a kick-up of 2½ inches in the rear. The front springs will be semi-elliptical, 36 inches long, the rear springs three-quarter ellipties, 44 inches long, of conventional scroll type.

The first demonstrator will leave the Van Winkle works in 30 days, and regular deliveries are being promised for 90 days. These will be the 1911 models, and about 200 will be made. The officers of the company are: E. Van Winkle, president; J. F. Eskew, vice-president; W. O. Field, secretary; Ed. A. Cerf, treasurer; J. J. Murphy, fiscal agent; Henry S. Miles, Ed M. Pearce, directors.

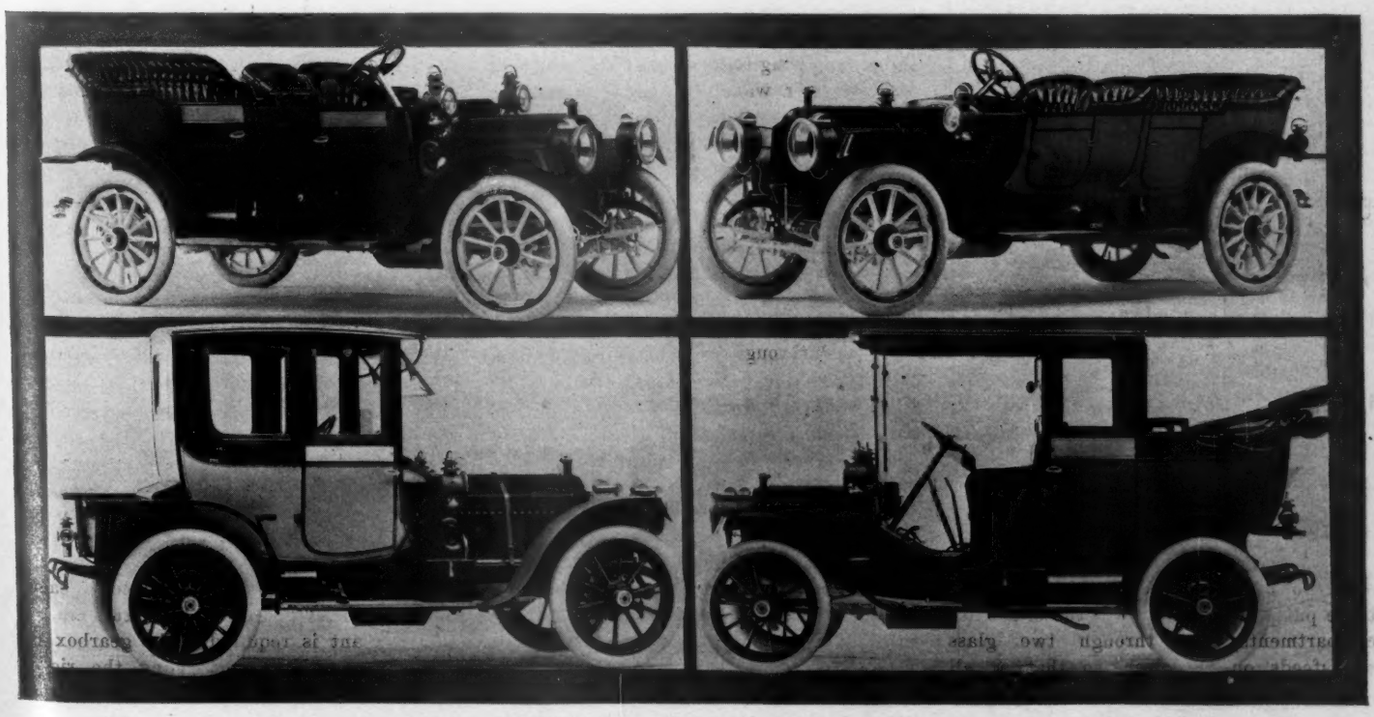


FIG. 9—PACKARD 18 OPEN CAR, FORE DOOR TYPE
FIG. 10—PACKARD 30 FITTED WITH COUPE BODY
FIG. 11—PACKARD 30 PHAETON, FORE DOOR TYPE
FIG. 12—PACKARD LANDAULET, WITH TOP DOWN

# The Motor Car Repair Shop

## Hints for the Amateur

IT IS important in connecting up the terminals of a magneto or any other part of an ignition system that the connections be of a substantial nature; but notwithstanding the fact that the manufacturers of ignition appliances have provided most adequate facilities for making positive and lasting connections, much of the ignition trouble encountered is due to loose or broken terminals. In Fig. 1, the method of securing the terminals of the Remy magnetos to the high-tension cables is illustrated. The most difficulty generally met with by the amateur is in getting the wire portion W of the cable B through the channel C of the hard rubber terminal cup U; also in getting the end of the insulation into the cup portion P. This trouble is due to the fact that the ends both of the wire cable and the insulation are frayed and expanded. The first thing to do in making a connection of this kind is to cut off a small section S of the insulation, as shown in the center of Fig. 1, and strip it off without twisting it. If the end of the cable is frayed, cut off a small portion of it first. Next lay the end of the insulation on a flat surface, take a ruler R or the like, place it at an angle upon the end of the insulation as shown at X, and roll it back and forth a few times in a manner indicated at Y. This will constrict the end of the insulation so it may be readily inserted in the cup P, and with the end of the cable freshly cut off it should also pass through the channel C without trouble. To complete the job simply unravel the end of the cable, bend the strands down to conform to the bottom of the cup, and screw the brass terminal L into place. The wire strands can be readily unraveled with a screwdriver or some similar tool or implement. When the terminals of a motor are suspected of being broken they can generally be tested by wiggling the cable or pushing it inward toward the socket of the terminal and noting the effect on the motor while it is running.

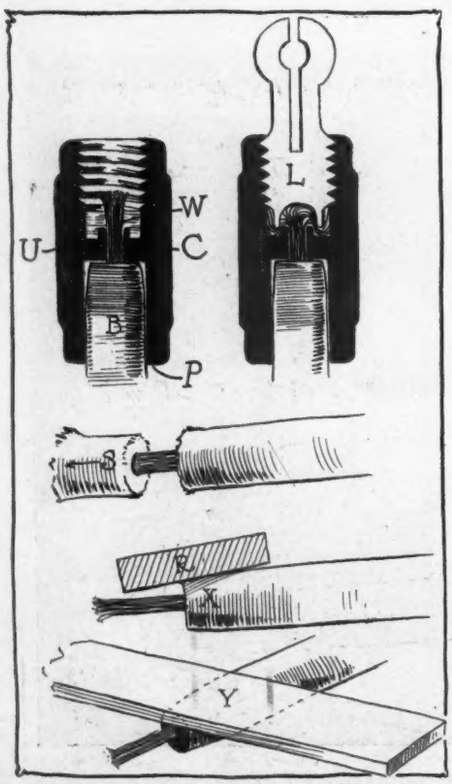



FIG. 1—HINTS ON ELECTRICAL TERMINALS

### Don't Race the Engine

One of the worst abuses to which a motor may be subject is that of racing it, running it at exceedingly high speeds while the car is standing still or while the clutch is disengaged. It is a common abuse; and many drivers, owners and repairmen fail to realize the full extent of the damage that is possible from this practice. In Fig. 2, an effort is made to illustrate and impress upon those who handle cars and motors, the extent of the damage possible to the valve mechanism, and the evil which may be done to other parts as a result. When a motor is raced it often attains a speed of 2,000 revolutions per minute, perhaps more or a little less; at any rate the speed attained is generally far in excess of that for which the engine is designed. Study Fig. 2, and see what happens; the cam C revolves at excessive speed, the push-rod or valve-lifter F does not remain in contact with the surface of the cam at all times as it should, but is forced from the apex of the cam with such terrific force that it makes a jump as indicated by the dotted line D. Sometimes the valve strikes the spark-plug G, as indicated by the dotted lines E, and destroys it; but this is the least of the troubles. Supposing a motor is allowed to race for a minute at or near the rate of 2,000 revolutions; the case-hardened roller R of the push-rod strikes the case-hardened surface of the cam at the point A about 2,000 times with all the force of the valve-spring; or the head H of the valve slaps down on the valve seat in the cylinder as many times with as much force; 2,000 times or thereabouts the valve-stem M strikes the top of the push-rod O. Imagine what this means. It means that the case-hardened surfaces of both the cam and roller are liable to be ruined; if there is any play between the roller R and its pin P, this play will be greatly increased; the ends of the valve-stem M, and the push-rod O, will be battered up or down till the space between them is considerably increased; the hammering at this point is liable to loosen the lock-nut N, and the threads of the adjusting stud and push-rod injured: and last but worst, the head H of the valve is liable to be snapped off, drop into the cylinder and punch a hole through the piston or cylinder head or both. Don't race the engine! If you must speed it up to test the ignition or carbureter, speed it up for a few seconds only; do not let it attain its maximum speed. When throwing out the clutch, retard the throttle. Consider it an evil practice and avoid it as much as possible.

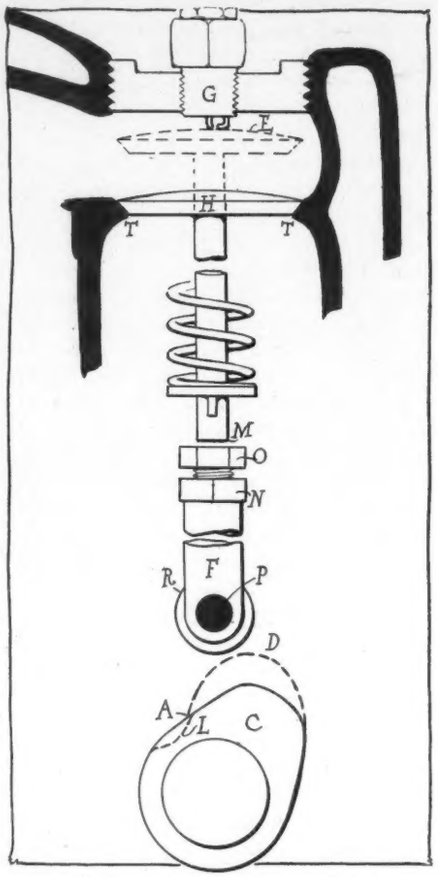



FIG. 2—EFFECTS OF RACING ENGINE

### Preventing Tire Valve Leaks

It is claimed that the larger part of tire valve trouble is caused by the cutting away of small particles of the rubber washer which is fitted within the top of the valve cap, and the falling of these small particles into the inner parts of the valves, where they often work between the seat and the valve and prevent the valve from seating. To protect the rubber washer and stop leaks from this source, simply cut small disks of hard rubber so that they will just fit into the cap and cover the rubber washer. Thus the rubber will be still effective as a cushion, but, being protected by the leather, it will not be injured when the valve cap is screwed up into place.

# Current Motor Car Patents

**Revolving Two-Cycle Engine**—No. 956,881, dated May 3; to John C. Bonnett, New Haven, Conn.—This patent applies to a revolving internal combustion motor of the horizontal type, with four cylinders arranged as shown in Fig. 5, two of which are charging cylinders C, and the other two E, are explosion cylinders. The vertical crankshaft S is fixed, and a rotary crankcase to which the cylinders are attached is mounted upon it. A yoke having a ball-bearing upon the crankpin P, and which is mounted to rotate and reciprocate thereon, has the two connecting-rods of the pistons in the charging cylinders secured to it; and the movable piston rods of the explosion cylinders connect the pistons of their respective cylinders to the crankpin in a conventional manner. The means for admission and exit of gases, lubrication, ignition and cooling are neither shown in the accompanying sketch nor described in the patent gazette.

**Two-cylinder Two-Cycle**—No. 956,967, dated May 3; to James H. Hopkins, Manchester, Eng.—The motor covered by this patent is of the vertical, water-cooled two-cycle two-cylinder en bloc type, in which each cylinder has two bores of different diameters; the smaller bore of the upper portion being the explosion cylinder and the larger bore immediately below it being the charging cylinder. This construction already has been adopted by several American motor vehicle manufacturers. The arrangements of the reciprocating parts of this motor is illustrated in Fig. 4. Double trunk pistons P, adapted to operate in the cylinders, are connected to the two-throw crankshaft S in the regular way. The motor is valveless, the inlet and exhaust ports being uncovered by the pistons at certain positions of their travel. In operation, when a piston is forced down by the explosion in the upper portion of a

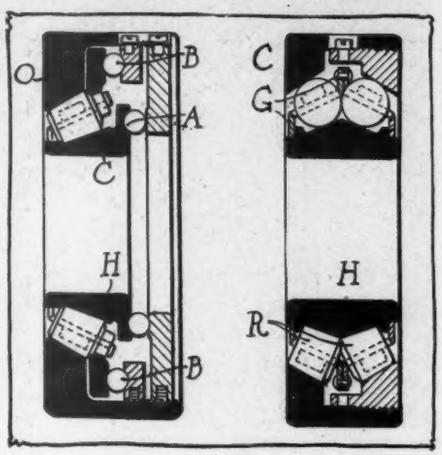



FIG. 1 FIG. 2

cylinder a vacuum is produced in the lower portion. As the piston approaches its bottom center, the exhaust port, allowing the burnt gases to escape, is uncovered, then the inlet ports of both cylinders are opened, admitting fresh charges of fuel. Means are provided for crosswise connecting the fuel-outlet ports of one charging cylinder with the inlet port of the opposite explosion cylinder. Thus, when the inlet-port of one cylinder is opened the charge compressed in the lower portion of the opposite cylinder is admitted to the upper explosion portion of the cylinder and at the same time a fresh charge of fuel is entering the lower or charging portion of the same cylinder.

**Inflating Tires With Motor**—No. 956,592, dated May 3; to Hiram P. Maxim, Hartford, Conn.—This patent relates to a method of inflating tires by means of attachments to one of the cylinders of a multi-cylinder motor whereby the exhaust gases therefrom may be cooled and forced through suitable connection to one or another of the tires. The arrangement of the attachments is sohwn in Fig. 3; and comprises a petcock P with perhaps a check-valve attachment C, secured to one of the cylinder plugs; and a coil L, in front of the dash D, for cooling the exhaust gases, one end of which is connected to the cylinder plug through the petcock P and the other end passing through the dashboard and fitted with a valve and means for attachment of the hose which conducts the cooled exhaust gases to the tires.

**Adjustable Roller Bearing**—No. 956,587, dated May 30; to Charles S. Lockwood, Newark, N. J.—This patent relates to a roller bearing with angular rolls, and ball bearing adjustments. As shown in Fig. 1, it consists of a hub having a conical roller seat C, and an annular ball seat A at the larger end; of a series of rolls fitted thereto, with means for keeping them in proper rolling alignment; of an outer ball race O, a clamp-ring R, with recesses for receiving the necks of the rolls and with an annular seat for a series of balls B; and adjustable retainer rings provided with annular ball seats to take up for wear in the parts and facilitate assembly and disassembly for overhauling or replacements.

**Combined Roller and Ball Bearings**—No. 956,588, dated May 30; to Charles S. Lockwood, Newark, N. J.—The roller bearing covered by this patent is shown in section in Fig. 2, and it differs from other types of annular roller bearings now on the market, in that it is adjustable, and in that it is a combination roller and ball bearing, embodying the advantages of both the line and point contacts. It consists of a doubly conical hub H; an adjustable casing C with tapering seats opposed to those of the hub; two series of balls and rollers arranged alternately in pairs with the members of each pair in contact; and a cage G, for guiding the series of balls and rolls within the casing.

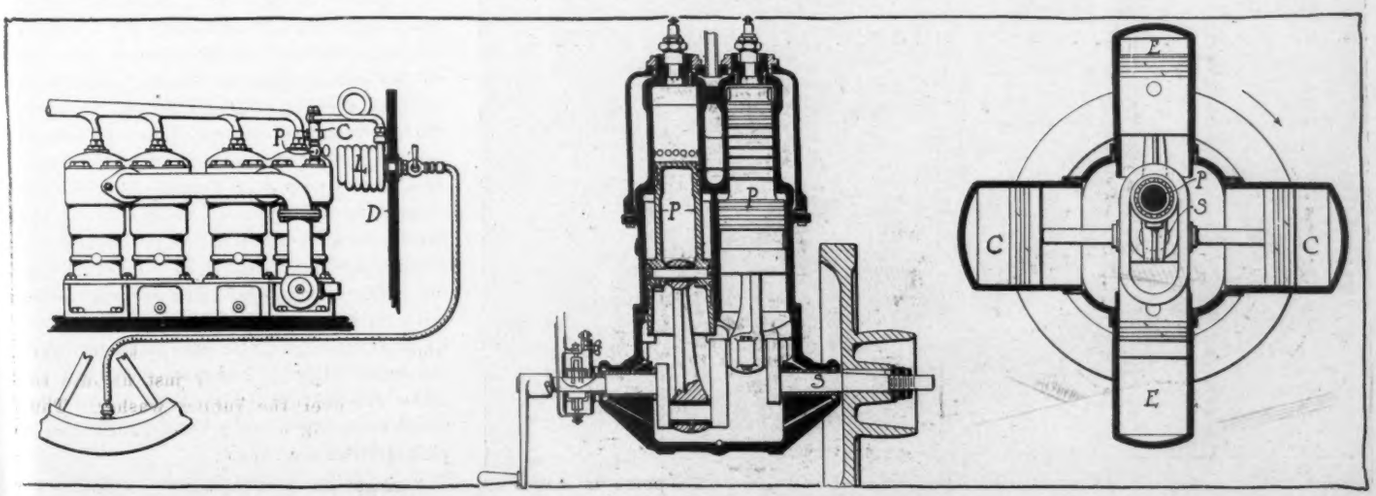
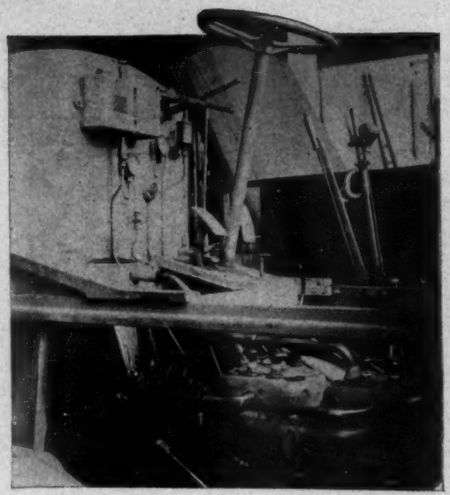



FIG. 3—INFLATING TIRES WITH MOTOR FIG. 4—TWO-CYLINDER TWO-CYCLE FIG. 5—REVOLVING TWO-CYCLE ENGINE



DELAHAYE FOUR-CYLINDER UNDER FOOTBOARD

# In the Realm of the


DELAHAYE FOUR-CYLINDER TRUCK WHICH DRAWS A SUBSIDY

## SUBSIDY FOR FRENCH TRUCKS

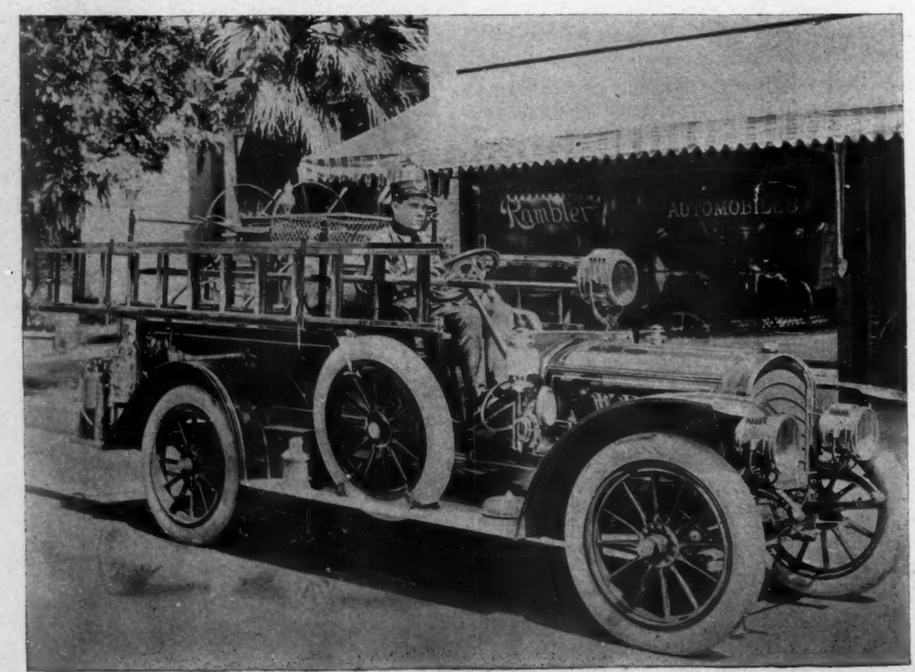
A SUM of $60,000 has just been voted by the French parliament to be devoted during the financial year 1910 towards the subsidizing of commercial vehicles in the hands of private owners. In an endurance and economy test held last November the seven following firms: Aries, Delahaye, Berliet, Cohandet, de Dion-Bouton, Saurer, and Vinot-Deguingand, satisfied all requirements, and now have the right to sell their approved type of commercial vehicle with the assurance of a subsidy from the army providing the owner maintains his vehicle up to standard and presents it for service when called upon in the case of mobilization. On purchasing the owners themselves are obliged to make application for the subsidy, which will be immediately granted, providing conditions have been complied with, until the funds allowed for this purpose have been exhausted.

As an example of the assistance given, the purchaser of an approved truck carrying a minimum useful load of 2 tons will receive from the government $400 on taking delivery of his vehicle and $200 for each of the 3 following years, providing, of course, that the vehicle is presented for inspection annually, and is maintained in proper working condition. For each addition of 550 pounds to the minimum useful load of 2 tons, an additional subsidy of $30 on purchase and $10 per annum will be allowed. The actual load the vehicle is capable of carrying is under normal conditions determined by the amount it carried during the road test last November.

For tractors carrying a useful load and at the same time hauling one or more trailers, the same subsidy is allowed. In addition, however, there is an increased subsidy of $200 on purchase and $100 per annum for a trailer having a total weight of not less than 5 tons. For each increase of 1,100 pounds in tow the subsidy is augmented $20 on purchase and $10 per annum. Road trains having a minimum useful load of 8 tons receive an initial subsidy of $1,200, and an annual subsidy of $600 for each of 3 following years. For each increase of 1,100 ounds on the minimum useful load there will be an increase in the subsidy of $40 on purchase and $20 per annum.

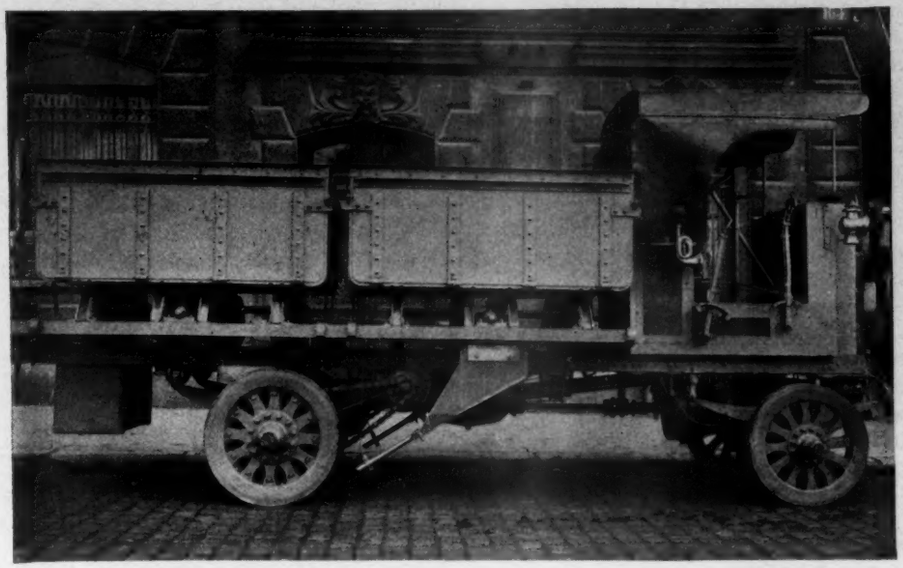
It is certain that this system of subsidies will create an enormous increase in the number of commercial vehicles employed in France, the system being one that appeals to a nation long familiar with military rule. The fact of having to present the vehicle in case of mobilization is no hardship, for in any case the vehicles doubtless would be immobilized by the calling out of their drivers for compulsory military service. Commercial vehicles and the army are so closely connected that it has been a common practice in the maneuvres of the past 3 or 4 years for manufacturers' test vehicles to be driven by the firm's own mechanics while undergoing their compulsory period of military training. The men pursue their normal calling with only a change from overalls to military uniforms, and the manufacturers have the satisfaction of knowing that their vehicles are in the hands of skilled men instead of being abused by the first comer picked from the ranks.

A single concrete example is sufficient to show the real financial assistance to be ob-




RAMBLER CHEMICAL TRUCK IN USE AT WHITTIER, CAL.

# Commercial Car



COHANDET TWO-CYLINDER TIP WAGON USED IN FRANCE

tained by the new army subsidies. The Delahaye company, among others, passed all requirements with one of its 3-ton gasoline trucks carrying a useful load of not less than 3 tons. The catalog price of such a vehicle, complete with solid rubber tires in front and twin solids in the rear, and an open type of body, is $4,000. As the load carried through the test last November was 3½ tons, the purchaser of such a vehicle would receive a subsidy of $580 on purchase and $260 for each of the 3 following years, making a total of $1,360 received in the first 4 years of the life of the truck. Even greater advantage is obtained by the user of a two-cylinder 2-ton model by the same firm, also approved in the last competition. Here the purchasing price is $2,520. As the vehicle carries a useful load of 2¼ tons, its owner would be entitled to a subsidy of $430 on taking delivery and $630 during the 3 following years, making a total of $1,060.

It has been decided recently that there shall be another trial of commercial vehicles this year, organized by the Automobile Club of France and the French army, the vehicles fulfilling all requirements to be available for the subsidies which doubtless will be repeated as last year. The tests will be held from Friday, August 12, to Wednesday, September 7, inclusive, headquarters being selected either in Paris or the immediate neighborhood, and the daily journeys made around the capital, with return every night to the same point. In addition to the ordinary journeys, there will be four trips in convoy formation, two under full load and two empty, the units to retain intervals of 25 yards and travel at a speed of 5 to 9 miles an hour. Three distinct fuels will be imposed; gasoline, carburetted alcohol and benzol, without any change of carbureter, and with only such adjustments as can be made on the road.

Three distinct classes of vehicles are provided for under the regulations. They are ordinary motor trucks, motor trucks taking a useful load of not less than 2 tons; load-carrying tractors with one or more trailers, and road trains. The first section, which is the most popular with both manufacturers and users, has always brought forth a fine selection of gasoline trucks carrying loads from 2 to 4 tons. They are obliged throughout the test to maintain an average speed of not less than 7 miles an hour and not more than 15½ miles.

COHAUNDET TIP WAGON IN USE

## RAMBLER FIRE APPARATUS

The advent of the motor car into general use on the Pacific coast has been hastened by the encouragement given to motor trucks by the city authorities in many western cities, where motor fire apparatus has proved particularly successful. Although Thomas B. Jeffery & Co. are not regular producers of motor trucks, the features of the Rambler chassis, its advantages of strength, durability and the power of the Rambler engine, recommends it for this purpose. A new Rambler motor chemical truck has been delivered to the city of Whittier, California. It is built on the 45-horsepower Rambler chassis, carries the spare wheel, and a great deal of extra equipment besides that regularly furnished with this car. The city of Kenosha, Wis., will have a similar truck, which is to take the place of the horse-drawn apparatus now in use. California is interested in the commercial proposition. Several big milling companies are using Packard trucks to carry the products of their mills.

PACKARD TRUCKS USED TO HAUL MILL PRODUCTS IN CALIFORNIA

ATLANTA TROPHY WON BY NATIONAL

# From the

**CINCINNATI Gets Many Cars**—The Automobile Club of Cincinnati has arranged to have 400 cars in the orphans' day parade June 2. Director A. P. Streitman has practically completed all arrangements.

**Indiana Registrations**—All former registration records were broken in Indiana during April, when 1,700 motorists registered with the Indiana secretary of state. The best previous record was in March, when there were about 1,400 registrations. There have been about 3,500 registrations in Indiana so far this year.

**Promoting a Roadability Run**—The Delaware Automobile Association is arranging for a roadability run during the next few weeks, and, while the route has not been selected, it is probable that it will be from Wilmington to Lancaster, Pa., and return. If Lancaster is selected the trip will be longer than any heretofore taken by the club, and it will also include some interesting hill-climbing.

**Many Complaints Against Drivers**—According to advices from Lansing, Mich., clerks in the office of the secretary of state are working overtime preparing lists of drivers throughout the state who have been complained against for violating the motor car law. Copies of these lists will be mailed to every county clerk in the state, to be placed on file, and in this way the authorities will be able at a glance to determine whether a motorist arrested for exceeding the speed limit or otherwise taking liberties with the statutes affecting motor traffic is a first or second offender and they will act acordingly.

**After Horse-Drawn Vehicles, Too**—An ordinance has been introduced in the Columbus city council to compel the drivers of all horse-drawn vehicles to display a tail light similar to that compelled by the motor law.

**Rambler Wins Hill Climb**—In the first annual hill-climb of the Sacramento Automobile Dealers' Association, L. B. Harvey, driving a Rambler, was the star performer, winning the two major events on the card, including the free-for-all class, in this event climbing the hill in 1:51⅕, the best time of the day. The hill, which is situated in the heart of the town, is a mile long with a grade ranging from 8 to 15 per cent, and includes two sharp turns.

**Milwaukee Will Try Again**—Another attempt is being made in Milwaukee to levy a tax on vehicles of all kinds to raise funds for street improvement and maintenance. The author is Alderman August E. Braun, who is of the opinion that a wheel tax is justifiable, being compensation for the wear and tear on streets. It is intimated motorists will be discriminated against in the levying of the tax, which will be based on horsepower.

**Bay Staters Stung**—Massachusetts motorists were badly stung by the legislature last week when the bill came up for lights on vehicles at night. The bill went along apparently all right and had passed to a third reading without debate by a vote of 92 to 82. A couple of days later it came up for its final reading on the question of being passed and with a roar it was voted down. Motorists who had been talking with members of the legislature were told it was all right. The vote on turning it down, however, was 49 to 26. This is significant, for but seventy-five members voted, while the house has about 225.

**New Road at Tacoma**—One of the most beautiful boulevards on the Pacific coast is now under construction near Tacoma, with a water view of nearly 2 miles, and the remainder of the way carved through a virgin grove of Washington timber. It will be known as the Brown's Point boulevard. The boulevard, when completed, will give communication with a large district on the east side of Commencement bay, and will also give vehicle transportation to the summer resorts known as Hyada Park, Dash Point and Fairview Park. The new road is to join with the recently constructed county road on the east side of the bay at the head of Julia's gulch. The boulevard will be 4 miles in length and 100 feet in width. The only grade on the entire road will be one of 4 to 5 per cent in the ascent at Julia's gulch.

**Long Race Postponed**—The 24-hour race scheduled to be held on the Los Angeles motordrome April 30 has been postponed until improvements can be made in the track. A larger grand stand is to be built at the finish and the boards are to be laid along the flat on the inside for a distance of 20 feet. The race probably will be run May 30.

**Premier Roadability**—The Premier roadability run from Philadelphia to Cape May is scheduled this year for Saturday, June 11. The route selected will include May's Landing, Vineland and Millville, and many of the roads passed over by the successful run of the Harrisburg Motor Club last week. The Cape May authorities are much interested in the run and are prodding the board of freeholders of the county to get all that portion of the route in Cape May county in tip-top shape before the date of the run.

**Run For Owners**—Entry blanks for the reliability contest, to be run under the auspices of the Columbus Automobile Club from Columbus, O., to Indianapolis the latter part of May, have been completed. The run will start Friday morning, May 27, and the first day's trip will be to Richmond, Ind., where the night will be spent. The second day's journey will bring the party to Indianapolis, where the races on the motor speedway will be attended. The return trip will be made in 1 day, and the departure will be June 1. Already two dozen owners have entered their cars in the contest, which will be conducted under the rules of the A. A. A. It is expected that at least forty cars will be in the contest.

**Ohio Fighting Scorching**—A movement has been started over the entire state of Ohio against the reckless drivers of motor cars and especially against the scorcher. In addition to action on the part of the Ohio Automobile Association, and the various clubs in the state which look toward a fair enforcement of the state law, the Ohio state motor car department has taken a hand. In order to ascertain the limitations of the department, Secretary of State Thompson requested an opinion from Attorney General Denman as to the authority of the department to employ detectives and sleuths to see that the law relative to speed and recklessness is enforced. The attorney general held that the department had authority to employ men whose duties it shall be to arrest all offenders and bring them to justice. As a result the department will have a number of detectives

# Four Winds

in various parts of the state who will work with the local police departments in stopping scorching.

**Kissel Wins a Climb**—In the annual hill-climb at New Braunfels, Tex., a Kissel 30 won over a Thomas six, Winton six, Oakland 40, Marion, Franklin, Chalmers, Overland, and others. This car made the hill in :35, the record, made by Apperson, being :41.

**New York's Orphans' Day**—Fifty Pierce-Arrows, fifty Chalmers and fifty Buicks have been definitely donated so far to the New York orphans' day committee for use in the parade of the children to Coney Island. Another division is being formed to consist of Packard cars, but all the details of it have not yet been completed. The total number of cars donated to date is 182, but that number will be vastly augmented before the event is held. It is planned to accommodate all the 4,000 orphans who have made application.

**Big Parade Planned**—Twenty miles of cars, more than 2,000 machines, may constitute the motor parade that is to be one of the big features of the Elks' national reunion in Detroit in July. From present indications it will be the greatest pageant of the kind ever held in the United States, both in the number of cars participating and in the matter of decorations. The street railway company has given assurance that its cars will not break through the line of march while the parade is on, which will permit of a number of fancy maneuvers planned by the committee. The committee is making plans to take care of outside car owners who intend motoring to Detroit.

**Road Harmony in Indiana**—The chamber of commerce of South Bend, has commenced a campaign for good roads throughout northern Indiana. The chamber has taken the matter up and invitations have been sent out to mayors of cities and towns, to county commissioners and prominent citizens throughout the north section of the state, to meet in conference in South Bend, Ind. It is expected an effort will be made at the coming conference to create a means for bringing about better good roads laws in the state. In all probability a committee will be appointed by the congress to devise a measure for legislative enactment which will be based on the best laws in various states now having high-class public highways, such measure to supplement existing laws in the state on this subject. It is possible the United States department of agriculture will be asked to send a special representative to this section of the state to study road conditions and make such recommendations as seem proper for increasing the efficiency and improving the character of the roads in northern Indiana and possibly throughout the state.

**Kincade the Winner**—Tom Kincade drove the winning National in the 10-mile 301-450 class event at the Atlanta speedway instead of Johnny Aitken, as stated in Motor Age last week.

**Ohio's Miles of Roads**—According to the report of State Highway Commissioner J. C. Wonder, Ohio's roads would circle the earth more than three and a half times. He reports the total mileage of the roads of the Buckeye state as 88,861, which includes many improved roads. Mercer county has the largest mileage with 1,685, while Washington county is second with 1,525. Franklin county has 1,060 miles.

**Trying New Scoring System**—Visitors to the Indianapolis motor speedway in Indianapolis will see a new, or additional scoring system this year. Three huge scoring boards are to be erected, so that the score can be seen from all points of the course. Each board will be in charge of three men and will have three sections, each section being able to keep the time of ten cars, so that thirty cars can be scored at one time.

**Pennsylvania Registration**—Some idea of the phenomenal growth of the motoring habit in Pennsylvania may be had from the figures issued by the motor bureau of the state highway department for the first 4 months of the present year. Last year the total number of licenses issued was 34,351. Up to date the number of 1910 credentials passed out has been 38,970, made up of 22,909 owners, 11,185 chauffeurs, 2,150 dealers, 374 special and 2,352 motor cycles.

**Will Charge for Maps**—Contrary to the announcement made some time ago the Ohio highway department will not distribute free of charge the new road maps of Ohio, which have been prepared by counties. There is a great demand for the maps and the legislature is now discussing some plan for the distribution. Two thousand sets will be printed, which will be in black only. The next issue will be in several colors, which will show the various kinds of roads.

**Tries Vice-President Scheme**—Motor associations all over the country are watching an experiment which the Oregon State Automobile Association is carrying out successfully. The new plan devised by the Oregon association, is to place in every county a vice-president and under each vice-president a committee of five. This plan is intended to keep the interest alive in each locality and prevent the representation of the association from drifting to the big cities. This is the only association in the United States that has more than one vice-president. Secretary Therkelsen has received numerous inquiries from other associations in various parts of the country asking information as to how the plan is working.


ATLANTA TROPHY WON BY MARMON

**Amends Callan Bill**—At Albany, N. Y., the senate committee on internal affairs on May 11 reported the Callan motor bill with several amendments. The changes strengthen the provisions for the punishment of persons running away after having struck pedestrians; give equal reciprocity to Canadian motorists and increase from 45 to 50 horsepower the capacity of machines upon which a tax of $25 is to be imposed.

**Good Work by Bisons**—One of the things that the Buffalo Automobile Club is doing that will be appreciated by vast numbers of motorists is to place signs of warning and direction on all the roads within a radius of 100 miles of Buffalo. The work has been directed by Dai H. Lewis, secretary of the club, and the members are taking an active part in it. When they learn of a particularly dangerous place or town that is hard to find, they investigate and report to Mr. Lewis' office. Signs are made at once and are then placed on their proper places. This is only one of the many practical ways in which the Buffalo Automobile Club is showing that it is alive and wideawake as well as progressive.

# TREND OF THE SEASON IN MINOR DETAILS

By M. R. Wells

THE radiator is one of the car members which, under normal conditions, seldom has to be removed, but that time will come sooner or later. In the majority of cars, the radiator cannot be pulled forward until it has been raised enough so the studs in its base lift out of their holes and clear the cross member. Most designers seem to delight in connecting the bottom of the radiator with the pump by a short stiff piece of rubber hose between two horizontal pipes or connections and it is certainly a difficult matter at times to make or break this connection, especially when the rubber has become firmly attached to the metal surface. If the radiator can be moved forward without first lifting, it will be seen that the movement is directly in line with the hose, and the operation is thus greatly simplified.

This feature was taken care of on some cars by setting the radiator on brackets or shelves supported from the front cross member, Fig 1. The slot is obtained in both cases without weakening the cross member and it may be noted that if the brackets are not made too heavy, they offer a more flexible support and thus eliminate strains which occur when the radiator is bolted directly to the cross member. In one or two cases regular metal hose couplings were provided and the breaking of the radiator water connections thus made a much easier matter. Such cases were, however, by no means common.

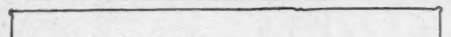


FIG. 1—RADIATOR SUPPORT

### Protection Against Mud

The present tendency toward locating the radiator slightly behind rather than directly over or in front of the axle increases the chances of the radiators catching the mud thrown up by the front wheels when they strike a puddle. To provide against this, the White company makes use of mud wings or aprons, fastening them to the front ends of the frame members and allowing them to hang vertically, Fig. 2. On the Franklin, an apron is swung across from the front of one side frame to the other. It is cut out at the central portion in order to allow the starting crank to clear, Fig. 3. On the Royal Tourist, an apron similar to that used on the Franklin is adopted, but since the starting crank is thrown ahead of the forward ends of the frame, the apron may retain its full width clear across and thus offer better protection to the radiator. The little nook thus formed also is taken advantage of as a convenient location for the horn, Fig. 4.

### Fan Belt Adjustment

By far the greater portion of the cars are now provided with easy means for tightening the fan belt. The favorite method seemed to be to support the fan spindle at the end of a short lever or crank, which could be clamped in its various positions. In several instances the lever is not clamped but has a spring so connected that it automatically swings to the position which gives the desired tension on the belt. With certain designs, the spring has been considered inadvisable since, in case the belt breaks or jumps off the pulley, the fan may be thrown to such a position that it will strike and be injured. Hence, a long threaded bolt with a wing nut often takes the place of the spring except that the automatic feature no longer exists. What practically amounts to the same thing as the crank is an eccentric to which the fan spindle is connected. In this case, however, the strap for clamping the eccentric cannot be attached to the cylinder as easily as the simple pin of the crank device, and the idea therefore is seen mostly on cars having the fan supported by a more or less elaborate bracket fastened to the crankcase. There apparently is a tendency to drop the practice of clamping the fan spindle in a vertical slot, but it still claims a number of adherents. Some makers have adopted the neater but more expensive method of driving the fan through the means of a small friction clutch, which is positively driven by gears.

While perhaps most of the fans are quite accessible in case they need attention, there still are many which cannot be removed without first taking off the radiator. Perhaps the only type of fan which never requires any attention whatever is where it is made an integral part of the flywheel. The flywheel fan shown on the Franklin car seemed to arouse the interest of many on account of the shape given the turbine-like blades, the question as to which way the air currents pass through it being raised quite often.

### Oil Drainage

The matter of draining the old oil from the crankcase occasionally and substituting a fresh and clean supply seems not to have been considered at all by some designers. In some instances, the only way of accomplishing this is to take out some six or eight bolts and remove the entire bottom plate of the crankcase. It is needless to add that the underpan has to be removed before one can start on the crankcase. On several cars, pipe plugs are provided or perhaps pet cocks, but in many constructions the pan still has to be removed in order to get at them. On a few cars, a rod is fastened to the drain cock and extended to some point where it can be gotten at easily. Since in some cities the laws are quite strict regarding any oil being allowed to drip from cars, some designers prefer to allow no openings through the under-pan and also form a dam across the lower rear edge, thus allowing quite a quantity of drippings to collect in the pan, from where it may be conveniently drained at intervals. For more conveniently draining the crankcase, some pans have a hole cut just below the drain cock but form a slight inwardly extending flange around the entire edge of it, thus allowing the oil from the cock to pass through but preventing the passage of any from leaks which may be running down the sides of the pan.

### Oil Level Indicators

The use of the circulating oil system having the main oil supply below the crankcase was quite general last season, but is still more so this year. Heretofore, many of these cars had no means of determining the amount of oil in the reservoir, some had two pet cocks, one being located at the proper level when full and the other close to the bottom. The top one was of no use except when filling the system and the lower one never could do more than indicate that there was at least more than a certain small amount of oil left, although how much more really was what the driver wanted to know in case he were starting on a short trip. In a few isolated cases, gauge glasses were attached, but were of necessity located so far down in the underpan that they were usually inaccessible and of little more use than the try cocks. This season many cars are provided with neat float indicators whereby the pointer is raised well up on the engine, where it may be seen at a glance. In some instances the pointer travels over a graduated scale which not only indicates the exact level but the number of pints or quarts.

### Under Pans of Cars

In most cases the under part of the car is well protected by underpans, which fit well and are practically mud and dustproof, but a few cars might be pointed out where no protection whatever is provided even for the timing gears, which are not inclosed but placed where they catch considerable mud. The majority of the pans are attached by means of spring catches or hooks so they may readily be

dropped down, but in other cases small stove bolts and nuts are used, thus requiring two persons to take the pan off, since one must hold a screw driver from above while the second man takes the nut from the rusty thread under the car. Some of these bolts are not provided with lock nuts or else their threads mutilated so that the chances of the nuts being lost on the road are exceptionally good. This same thing may be said of bolts used to fasten the sheet metal between the main and sub-frame, where the excuse that the threads should not be mutilated because the nuts may have to be removed, surely cannot be offered. Rivets are commonly used at this point.

**Location of Magnetos**

In noting the manner in which the different designers have chosen to locate the magneto, one almost is forced to the conclusion that one faction believes that by placing the magneto where it is next to impossible to get at it, the driver will not tinker with it unless as a last resort, thus leaving it in its proper adjustment for a greater length of time. Some, who apparently take this view of the matter, have placed the magneto so far back that the distributor and contact-breaker end really is directly below or slightly back of the dash. On at least one car having the magneto thus located the floor board, which would necessarily have to be raised in order to examine the distributor or breaker, is well fastened down. In other cases, the flywheel makes it almost impossible to examine the contacts while the magneto is in place.

The second faction evidently admits that even the magneto occasionally requires attention and accordingly tries to place it so that the parts most liable to give trouble are quite accessible. The writer is inclined to agree with this last faction and argues that if a driver can examine easily the parts under suspicion he will see that they are in proper shape and therefore leaves them unmolested. On the other hand, if the magneto is located

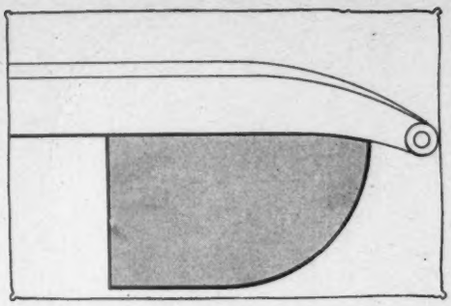


FIG. 2—MUD WINGS OR APRON ON WHITE

where he cannot easily inspect the contacts, when anything goes wrong with the engine, he suspicions the magneto the first thing and proceeds to put it out of adjustment nine times out of every ten. In compliance with the latter idea, several cars have the magneto placed crosswise of the car and up where it can be seen and gotten at with ease. The majority, however, prefer a position at the side of the crankcase, placing it so far forward that one can easily get his head between it and the dash, thus examining the contacts with comparative ease.

Locating the magneto by means of pins and holding down on its base by a strap of metal passing over the magneto is a favorite method. The band is usually in two sections, as illustrated in Fig. 5, thus bringing the nut A, which tightens or loosens the band, at a point which is easily gotten at. In other instances, however, the magneto is bolted direct to its base and, since the nuts are below, it is almost impossible to remove the magneto after the engine has been placed in the chassis.

It might also be worth mentioning, at this point, that some magnetos are strapped down on iron or steel brackets and no precaution taken to see that brass or nonmagnetic fittings are used at the point "A", where the tightening bolts joined the straps. A little thought will show that, as illustrated in Fig. 5, a portion of the lines of force will return by way of the bolts and base instead of through the armature. Although the effect of this may not be noticed at ordinary speeds, it will have much to do with determining the lowest speed at which a good spark is produced.

**Timers**

Timers are less in evidence than in the past, owing to the more general adoption of the magneto. Where still retained, its location is about as unsettled as ever, at times well up and easily gotten at, while at others it is at the rear end of the camshaft and so close to the flywheel or dash that it is certainly inaccessible.

**Carbureters**

Each season shows a greater per cent of the makers admitting that the concern devoting almost its entire time to the production of carbureters can sell him a better article and for less money than he can afford to make it himself. Simplicity of construction and adjustment have been well considered as a rule, and recognizing the fact that the carbureter is located pretty low with respect to the engine on many cars, most manufacturers have seen fit to place the adjustments so that they may be easily reached from above. Of course there always is the exception to the rule. On cars using pressure feed for the gasoline, there is little need of placing the carbureter as low as otherwise and it is not uncommon to see it entirely above the level of the frame where it is quite accessible. It is with pleasure that one notes the general absence of the numerous levers, cams, springs, etc., which were connected with so many carbureters a few years ago.

**Water Pumps**

Where a pump is used in the cooling water system, it is seldom of any other than the centrifugal type. The gear and vane types claim very few adherents this season. The general practice is to drive the pump at crankshaft speed, but a very noticeable exception to this rule is seen in the White. Here the diameter of the centrifugal pump is unusually small, but it is claimed that the decrease in the diameter is more than compensated for by

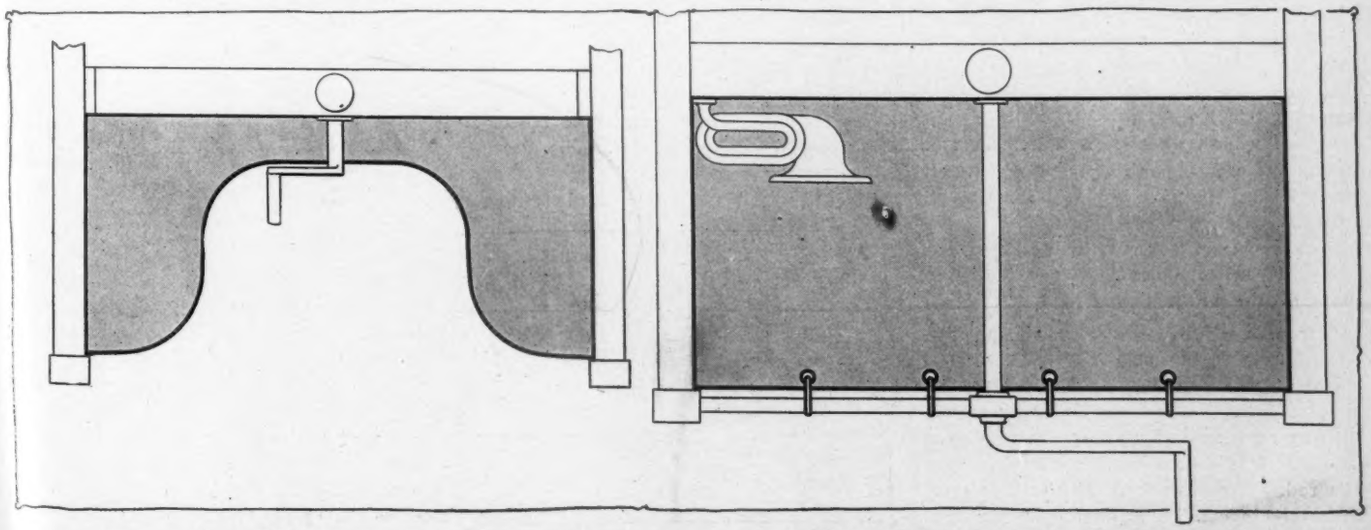


FIG. 3—MUD WINGS FITTED ON FRANKLIN CARS

FIG. 4—PROTECTING HORN AND RADIATOR ON ROYAL TOURIST

the higher speed at which it is geared to run.

Many different styles of universal joints and coupling are in evidence on the various cars for connecting the end of the pump-shaft to that of the shaft from which it was driven. Many of them are quite elaborate and expensive and yet perhaps the cheapest construction serves its purpose equally as well as any and certainly better than some. In the construction referred to, the end of both shafts are slotted. As the connecting link, use is made of an ordinary helical spring having the ends of the wire bent in to form a diameter. The diameter of the spring is such that the ends of the shafts slip inside easily and the slots in the shafts' ends made to suit the wire of the spring. A glance at the sketch (Fig. 6) will show that the device is flexible in several senses of the word, is not liable to rattle and yet can be easily removed by slightly compressing the spring.

A little study of some of the more pretentious couplings reveals the fact that they really are not universal or flexible in their action as intended and that unless the two shafts are perfectly lined up at all times great strain is thrown on the parts and causes excessive wear and other troubles.

**Clutch to Pedal Adjustment**

The means for providing suitable adjustment between the clutch and clutch pedal are so numerous and so universally simple that it is useless to attempt to consider them here. The point which is surprising, however, is the fact that absolutely no means are provided on some of the cars for the adjustment mentioned. Even on some of the new cars the pedal is touching the under side of the footboard and it is evident that after the leather face of the cone clutch has worn any in service, the pedal arm will have to be bent or the board deeply notched in order to allow the clutch to seat properly.

**Brake Adjustments**

The difference in the ease with which the brakes of the various cars may be adjusted, is a point worthy of attention. On several cars the service brake, naturally requiring adjustment most often, is a transmission brake, hence one adjustment serves for both wheels. A hand wheel or wing nut which can be reached without even lifting the floor board in some cases, furnishes a most accessible and easy means of caring for adjustment. Some cars using wheel brakes exclusively, place the wing nuts at the brake bands of both wheels where they are easily reached.

On perhaps the majority of the cars, adjustment is had only by altering the length of the brake rods, either by means of turn-buckles or by loosening the clevis at the end and screwing it up further onto the rod. The ease with which the above adjustments can be made apparently has received no consideration by some designers as the adjustment point is so located that it is necessary to get under the car in order to get at it and there absolutely is no reason why it could not just as well have been placed within easy reach. On the other hand this detail has been carefully considered by some, the points for making adjustment are conveniently located and the turn-buckles instead of being locked by jam nuts, are secured by some spring device, thus making it unnecessary to use any tools or wrenches in making the adjustments.

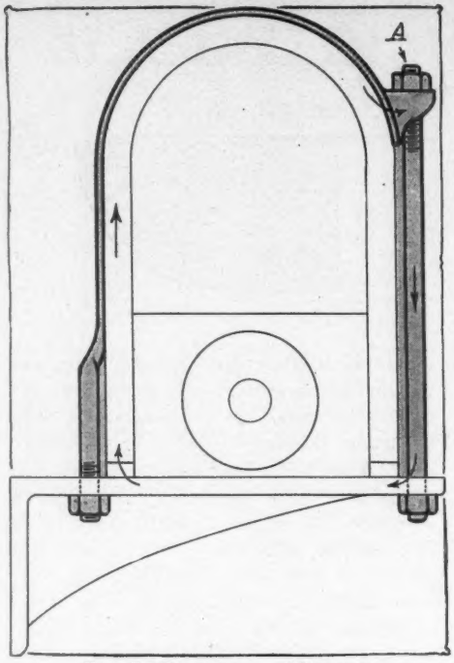



FIG. 5—FASTENING A MAGNETO

Steering gear stops though easily cared for when considered have been neglected by a number of manufacturers. Several cars are noted with the front wheels rubbing hard against the head lamps or perhaps the fore-and-aft steering gear connection. It is needless to say that neither the tires, lamps nor other parts are benefited by this lack of proper clearance.

The lubrication of the running gear is better provided for on the majority of cars this year, compression grease cups being fitted on all axle bearings, springs, etc.

# Repairing Broken Motor Car Chassis Springs

IN this article an effort is made to show the motorist how to deal with broken chassis springs and to give the repairman a few hints on what constitutes a successful spring repair; also to show in a non-technical manner some of the common causes for the failure of such springs to stand up.

Breaking a spring while touring through the country is a common occurrence and a few words on what to do in a case of that kind may be appreciated by those who have and those who may at some future time suffer this misfortune. In Fig. 1 an illustration is given of how a temporary repair was made upon a spring whose three lower leaves were broken on striking a hole in the road which was filled with water. After the break occurred the car was slowly driven to the next farmhouse, where a piece of 2 by 4 wood, a saw and some baling wire were obtained. The short block E was cut off first and two shallow grooves S were cut into one side of it so that it would clear the spring clips and rest flat on the central portion of the top spring leaf. The sides of these slots were cut with the saw and then finished up with a cold chisel from the tool kit of the car. The long piece B was then cut off and nailed to the short piece E, so that the sides were flush and its ends extended over the ends of the short block equally distant on either side. The top block C, which was made just a trifle longer than the short bottom block, then was cut off and slotted in the same manner as the under block, only the slots were not so wide, and farther apart, as designated by the letter F. This was then nailed to the long piece, centrally located, with the slots up; the frame of the car was jacked up so that the injured end was a little above its normal height; the blocks were set into position as shown, and securely bound into place with the wire D. When this was done a few strands were wound about the two top pieces to add to their security; then a few more strands were bound laterally around the whole. This completed the temporary repair; when the jack was removed from under the frame the under side cleared the top block by about 2 or 3 inches, which was as desired. Many miles were made that day on this repair.

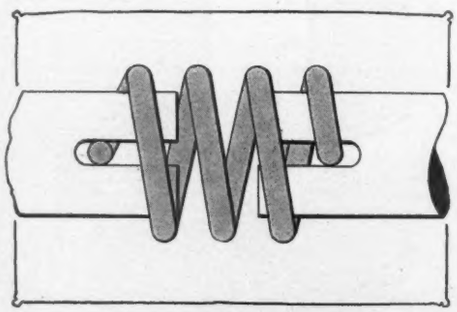


FIG. 6—PUMP SHAFT COUPLING

**Welding and Brazing**

Many repairmen, and motorists, too, are of the opinion that springs can be successfully welded and even brazed; and as a basis for their belief they can cite instances in which they, with their own eyes, have seen a broken spring leaf repaired, and although they may or may not have noticed that in the course of a number of days the spring either flattened out perceptibly and caused the car to sag at that end, or it broke soon after when another unusual bump was encountered, the break did not occur where the repair had been made, as might have been expected, but at an entirely

different place. This, to them, is evidence enough that the fault lay in the steel and not in the repair.

There is a psychological condition present when a car is being driven with a repaired spring which adds materially to the success of the job. This condition exists in the brain of the driver and he will constantly favor the injured spring. The best part of the road will be picked out for the spring, little holes and ruts will be carefully negotiated which under ordinary conditions would be ignored; the consciousness that the repair may not withstand the strain will cause the driver to make every effort to favor it.

This question of repair involves the welding qualities of the material and anything which will defeat weldibility will stand in the way of a repair of this character. It is fairly well understood that a weld, even in its most perfect form, involving the best selection of material for the purpose, is of far less value than the normal section of the same material. A weldable iron, as many tests have shown, will have strength in the welding portion ranging between 38 and 82 per cent of the strength of the normal section. This weldable material is low in carbon, sulphur and phosphorus, with silicon and manganese. Spring steel always is high in carbon and is sometimes alloyed with silicon, chromium, nickel and tungsten. These alloys defeat welding, and, putting it briefly, spring steel is incapable of being welded, if the weld itself is to be of sufficient strength to be of any great value under the conditions that spring plates have to work.

**Broken Spring Noticeable**

One leaf, and sometimes more than one leaf, of a spring may be broken and the car driven in this condition for weeks without the defect in the spring being noticed; then, on striking a bump, the whole spring will give way. Notwithstanding the fact that a spring so afflicted may go unnoticed for some time, its symptoms are none the less apparent, and the careful observer, be he owner or driver, or both, will notice a tendency on the part of the body of the car to sag to one side. This sagging always is a sign that the spring is defective, but does not necessarily signify that it contains any broken leaves. It also is due to an overloading of the car, to improper design or size, or an error in the selection or the tempering of the steel. The design of motor car springs involves so many variables that as yet no standard has been adopted by the manufacturers. And as a result there are so many different designs in use, and so many different kinds of steel employed, which are treated in so many different ways, that no repairman is safe in welding, brazing, re-tempering or in any way attempting the repair of defective or broken chassis springs. It is therefore plain that the only practical permanent repair of a broken spring leaf is a new leaf, properly fitted in. A whole new spring is often more practical than a new leaf, especially if more than one of the leaves are broken, for when one or more of a set of leaves which go to make up a spring is broken it signifies that the other leaves are not so highly tempered and capable of bending more without breaking. At the same time it also is generally significant that the limit of elasticity is not so great in the less highly tempered steel of the unbroken leaves. Therefore, when the limit of elasticity of the highly tempered leaves which broke was past, the limit of the less highly tempered leaves had also been past and they were bent.

If a new leaf is fitted in with the bent leaves, it is plain that up to a certain extent, at the beginning of compression, the entire load as well as the counteracting force of the bent leaves will devolve upon the new leaves, and in a remarkably short time they, too, will be either bent or again broken.

**Illustration Is Given**

This is illustrated in Fig. 2; L1, L2, L3 and L4 represent four spring leaves of an ordinary chassis spring. It is assumed that the dotted lines A represent the elastic limit of the leaves L1, L3 and L4; and the dotted line B is the limit of leaf L2, which is more highly tempered than the rest. When the bump occurred that caused the spring to deflect until the elastic limit of the leaf L2 was past, and it broke, the limits of the other three springs had also been past, but owing to their lower temper they did not break, but were strained, so that instead of returning to their original shape they returned to the position designated by the dotted lines C. Now herein lies the cause of the impracticability of replacing a broken spring leaf: The fact that the unbroken leaves have been strained and lost their original bow is rarely recognized, and the repairman merely removes the spring clips from the injured spring and replaces the broken leaf with another from a similar spring, draws up the clip again, and the job is finished.

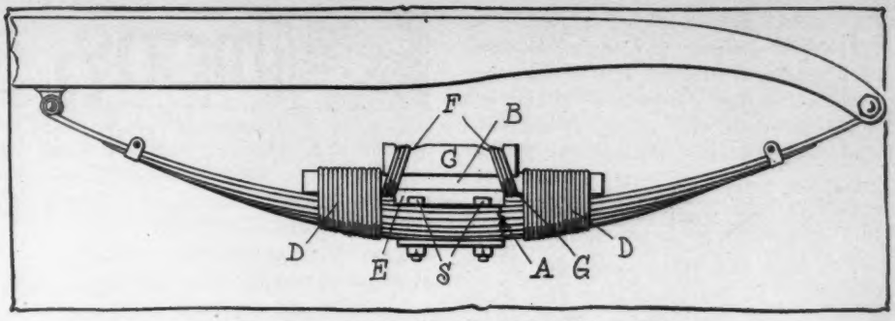



FIG. 1—REPAIRING BROKEN CHASSIS SPRINGS

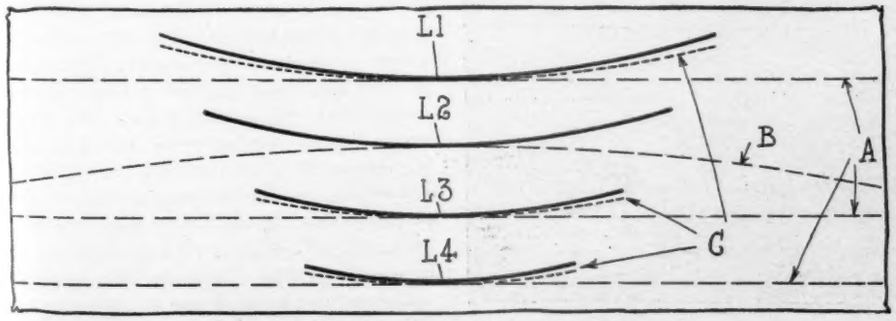



FIG. 2—REPAIRING BROKEN CHASSIS SPRINGS

## DELAWARE BUILDING ROADS

Wilmington, Del., May 16—An interesting report has just been issued by Robert M. Burns, treasurer of New Castle county, showing the great advance made in road building by the county in the past 3 years, and giving a line on the immediate future in that behalf. According to the report, the county has in that time spent all of the proceeds of a $300,000 bond issue for good roads and is well into another issue for the same amount, and the total expenditure for good roads, in the 4 years to be represented, will be $600,000.

Until 4 years ago Delaware was slow in the matter of building permanent roads, but since that time it has done a great deal, as the figures for this county indicate. The county comprises the upper part of the state, which is used most by motorists, as it contains Wilmington and is also on a direct line between New York, Philadelphia, Baltimore and Washington.

The city of Wilmington will this year spend $200,000 on street improvements, bitulithic, asphalt and concrete being used exclusively. Until the past few years firebrick and Belgian block were used extensively in paving here, but as the city has its own asphalt and bitulithic plant, it is likely that only this kind of paving will be done in the future. During the past 5 years Wilmington has spent about $1,000,000 in street paving.

# Among the Makers

**OMAHA Branch Contemplated**—The E-M-F company is planning to establish a branch in Omaha. If this is done, it is announced that a large new building will be erected there this spring of sufficient capacity to meet the demands of a branch.

**Will Sell Tires**—The General Tire Co. of Cincinnati, Ohio, was incorporated recently with an authorized capital of $10,000 to deal in tires and accessories, with A. V. Boettles, J. H. Marvin, Philip Eid, A. J. Braumvart, Jr., and John L. Boake as incorporators.

**Will Not Make Cars**—The F. W. Spacke Machine Co., Indianapolis, Ind., announces that, although an impression has gone abroad that it will engage in the manufacture of cars, such information is erroneous, and that it will continue solely in the manufacture of motor car parts.

**Another Pontiac Industry**—The location of a foundry in Pontiac, Mich., by the Michigan Auto Castings Co. is now an assured fact. Ground for the foundry has been donated by William H. Osmun on Osmun street. The soliciting of stock is now in progress. The capital of the company will be $100,000.

**Another for Toledo**—Toledo has secured another factory which will manufacture motor accessories. This is the Stranahan Co., of Boston, Mass., maker of spark plugs. Two locations are under consideration. When the new factory is in operation the Willys-Overland company will buy from it all the spark plugs used in the Toledo and Indianapolis plants of the big motor car makers.

**In Need of Houses**—"There would be 5,000 more men employed in Flint in the Buick and Weston-Mott factories if there were enough houses in the city to accommodate them and their families." This is the statement of C. S. Mott and it serves to illustrate the most serious problem with which the manufacturers of Flint, Mich., have to cope. The Weston-Mott force now numbers 2,300 men and the Buick is employing in the neighborhood of 8,000. The Weston-Mott company hopes to bring its number up to 3,000 before fall and the Buick company intends to increase its force this year.

**Adds to Muncie Plant**—The Muncie Foundry and Machine Co. of Muncie, Ind., has erected and completed a cleaning room 40 by 80 feet for the exclusive purpose of cleaning and inspecting cylinder castings. The equipment includes modern mills, dust-arrester, test pumps, sand blast and pickling room.

**Increases Size of Plant**—In the last 2 weeks the Streator Motor Car Co. has commenced the erection of two large machine shops, each 75 by 400 feet. These buildings are to be of the latest mill construction, and machinery is already on the ground for equipping these two large shops.

**Body Company Elects Officers**—At a meeting of the Hayes-Ionia Auto Body Co. of Ionia, Mich., the following officers were elected: President, H. J. Hayes; vice-president, T. B. Preston; secretary, W. Q. Loomis; treasurer, W. B. Heath. The directors are F. W. Green, W. B. Heath, T. B. Preston and W. J. Loomis of Ionia, H. J. Hatch and H. H. Smith of Detroit and J. N. Willys of Toledo, Ohio. The capital is $150,000, of which $80,000 is preferred stock and $70,000 is common.

**Forms Licensed Dealers' Body**—With six concerns as charter members the Worcester Licensed Automobile Dealers' Association has been organized in Worcester, Mass., for the purpose of creating better feeling among the dealers and to interest the public to a great extent than at the present in motor cars, Bertwood A. Lemont is president. The other officers chosen at the organization meeting were Vice-president, Fred B. Williams; Oliver P. Tyler, secretary and treasurer. The charter members of the new organization are: Lemont Motor Car Co., J. S. Harrington, Worcester Motor Car Co., Macker-Tyler Co., Harry J. Murch and the Norcross Auto Co.

**Needs More Homes**—G. A. Horner, general manager of the Rapid Motor Vehicle Co., is authority for the statement that, because of the lack of residences for workmen, the company has been forced to abandon many plans for improving and enlarging its plant at Pontiac, Mich. He says that the company needs 1,300 more men to handle its big plant, but that the company can find no place to house them. He has appealed to the citizens of Pontiac for their aid in alleviating this condition.

**Still Testing Law**—The state of Wisconsin has started another suit to test the constitutionality of the oil inspection law by making Thomas B. Jeffery & Co. of Kenosha, Wis., and individual officers of the corporation defendants. The chief oil inspector is trying to collect fees for testing 686 barrels of gasoline purchased by the Rambler concern for its own use. Experts for the company declared the tests to be valueless. The law was declared constitutional recently in a suit at Sheboygan, Wis., in which the Wadhams Oil Co. of Milwaukee was defendant.

**Adding to Anderson Plant**—Work has started on the addition to the plant of the Anderson Carriage Co., maker of the Detroit electric, which was made necessary by the company's entrance into the commercial field. The new building will be three stories high, of reinforced concrete, and will afford about 100,000 square feet of additional floor space. It is to be ready for occupancy late in the summer. The company plans to put out about 1,000 electric trucks during the 1911 season, all equipped with Edison batteries. Deliveries will begin early in the fall, it is expected.

**Regal Building No. 9**—The construction of building No. 9 of the Regal Motor Car Co. plant is fast progressing. The first story is completed and the building will be ready for occupancy July 1. It will have over a quarter-million square feet of floor space. Special attention has been given to lighting and ventilating facilities. The building is to be of brick, stone, steel and concrete construction. It will be used almost exclusively for assembling. There will be a 20-foot circular roadway going completely around each floor. The large motor trucks employed by the company can gather up a load of rough stock, enter either one of the large gateways, drive into the building and around to any part of it, depositing stock or picking it up as it goes on. There will be two immense elevators, one at each end of the building, which will make it possible to lift these

REGAL MOTOR CAR CO. OF DETROIT STARTS WORK ON NO. 9 PLANT

# and Dealers

large trucks with their loads to the second floor. The building will be of as nearly fireproof construction as it is possible to make a building.

**New in Omaha**—The demand for cars has brought several new machines into Omaha during the past few days. The Sweet-Edwards company has brought out the R. A. C.; F. C. Henry has introduced the Henry; the Standard Auto Co. is showing the Westcott; the Omaha Auto Co. has the Demot and C. F. Louck, the Abbott-Detroit.

**Studebakers' Chicago Move**—The Studebakers this week took possession of their seven-story building at Michigan avenue and Twenty-first street, Chicago, which is located on a lot 75 by 175 feet. The big structure is most complete in all its appointments and will be occupied solely by the Studebakers' motor interests—the Studebaker, E-M-F and Flanders. The carriage part of the business will remain in the Wabash avenue store.

**Rules On Drawbacks**—The treasury department at Washington has ruled that the regulations of March 2, 1907, providing for the allowance of drawback on spark plugs manufactured by A. R. Mosler & Co., of New York, with the use of porcelain tubes, should be extended to cover the exportation of spark plugs manufactured by the Champion Ignition Co., of Flint, Mich., with the use of imported porcelain insulators.

**Making a New Car**—Harry W. Cleveland, of Fond du Lac, Wis., has completed his first full-sized model of a new pleasure car, which will be manufactured by the Giddings and Lewis Mfg. Co., of Fond du Lac. Cleveland is a son of C. E. Cleveland, president of the big machinery concern. The car, named the Oriole, has been in building for 1 year. It has a four-cylinder motor, 4¾ by 5½ inches bore and stroke, developing 45 horsepower. The wheels are 40-inch, with 4-inch tires. The wheelbase is 126 inches.

**New Officers Elected**—The Licensed Motor Car Dealers' Association of Los Angeles, the first licensed dealers' association organized in the United States, elected new officers at the annual meeting, as follows: Earl C. Anthony of the Western Motor Car Co., president; Don Lee, Cadillac agent, vice-president; A. M. Young, Birely & Young, secretary; P. H. Greer, Mitchell agency, treasurer. P. A. Lord, Ralph Hamlin and W. E. Bush are the other directors. The association has instituted a coupon system which does away with charge accounts. Practically all of the local garages belonging to the association have gone on a cash basis. By purchasing coupon books 5 per cent can be saved, and the coupons will be accepted at all concerns belonging to the organization. The accounts are carried by a local bank and coupons can be redeemed for cash there.

**Now Healy Rim Co.**—The Healy Leather Tire Co. has been reorganized and will be known in the future as the Healy Rim Co. The address of the new company is 285 and 287 Jay street, Brooklyn, N. Y. This change has been necessary to provide better facilities for equipping cars with its demountable rims.

**Would Change Its Name**—A petition has been filed with the equity court by the L. P. Dorsett Co., of Washington, D. C., asking permission to change the name of the concern to the Carpenter Automobile Co. This action has been taken after a meeting of the stockholders authorized it. The company controls the Stoddard-Dayton, Klinekar, Empire and Babcock electric agencies.

**Bonnell Reeves' Assistant**—Horace A. Bonnell, treasurer of the American Automobile Association, has joined forces with the Association of Licensed Automobile Manufacturers. He will act as assistant to Alfred Reeves, the general manager, taking the place made vacant by the resignation of C. F. Clarkson, who is now associated with the Society of Automobile Engineers.

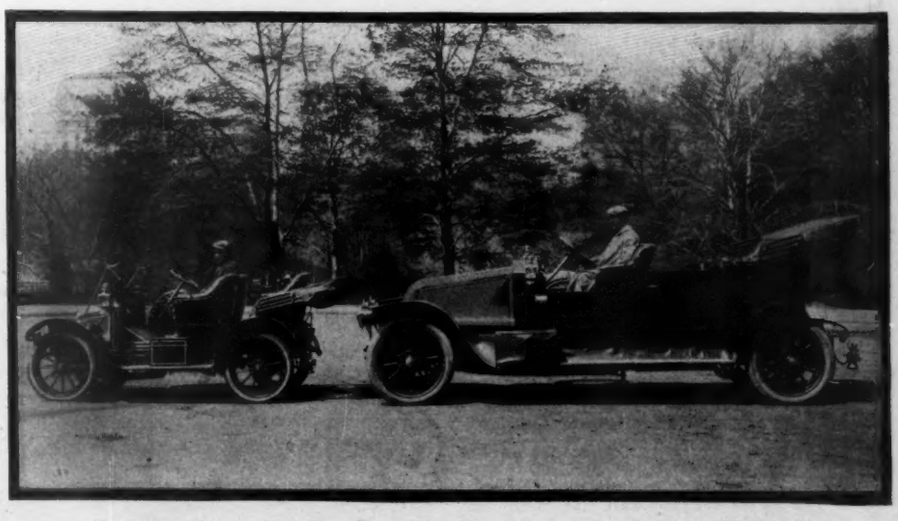
**One More in Detroit**—The Hale Motor and Machine Co. has been organized in Detroit for the manufacture of motors, transmissions and parts. The capital stock is $125,000, all of which has been subscribed and 50 per cent paid in. A factory will be established. The incorporators are: S. E. Hale, Cleveland; Charles Ritter, J. L. Hudson, Henry C. Walters, R. J. Brennan, Joseph W. Humphry, J. E. Dubois and Fred Houser, all of Detroit. Several parties in Cleveland and Chicago are interested. Henry C. Walters, one of the incorporators named, is attorney for the association of independent motor car manufacturers recently organized in Detroit.

**Buys Plant at Ionia**—The property, including the plant, of the Ionia Wagon Co., of Ionia, Mich., which went into the hands of a receiver some time ago, has been sold to the Hayes Ionia Auto Body Co. for $70,000. The company already has machinery on the ground and this will be installed at once. The company has a successful plant at Detroit.

**Cincinnati Dealers Organize**—Cincinnati dealers have perfected the organization of the Cincinnati Automobile Dealers' Association along broad lines and elected officers, as follows: Directors, Edward Herchede, H. T. Boulden, H. S. Leyman, Frank H. Miller, Robert C. Crothers, W. G. Welbon and Edward Kruse. No effort will be made to control prices and no price agreement is considered, according to the specific announcement made.

**Chooses R. A. Palmer**—The business men of Pontiac, Mich., have formed a commercial association for the purpose of pushing that town as a motor city. R. A. Palmer, secretary and general manager of the Cartercar company, is honored as the first president of the association; E. A. Halsey of the Rapid Motor Vehicle Co. is the first secretary. Mr. Halsey has resigned from his position with the Rapid and will give his entire time to the work of the secretary of the commercial association.

**Pittsburg Wants Carnivals**—Pittsburg dealers are studying the matter of outdoor motor carnivals. They believe that more real good can be accomplished in a sales way through these outdoor carnivals than through the winter indoor meetings. It has been found that in general prospective buyers take much more interest in seeing the cars in motion than they do in a long continued study of them under electric lights and arrangements are being made by leading companies in Pittsburg to put on one or more big summer carnivals this year to boom motoring.



EXTREMES MEET—TWO RENAULTS, TWO-CYLINDER AND SIX-CYLINDER MODELS

# Brief Business

**KEWAUNEE, WIS.**—The Haney-Pistor Co. is building a large public garage, the first in Kewaunee.

**Berlin, Wis.—The** Russell garage was almost totally destroyed by fire recently. Several other adjoining buildings were badly damaged.

**Cleveland, O.**—H. S. Moore has taken over the agency of the entire Overland line for northern Ohio. Moore will open a branch office on the west side of the city.

**Boston, Mass.**—The Standard Tire Traction Co., manufacturer of Standard chain grips, has opened salesrooms at 399 Boylston street, Boston. M. A. Kennedy is general manager.

**Fond du Lac, Wis.**—G. W. Worthing, formerly of the Worthing-Clark Automobile Co., has established a new garage at 22 East Second street. He has been appointed district agent for the Overland.

**Cleveland, O.**—L. C. Alexander has resigned from the Cleveland Warner instrument office to accept a position with the Willard Storage Battery Co. He will have charge of the lighting department of the Chicago office.

**Boston, Mass.**—Alvan T. Fuller, who handles the Packard cars in Boston, is soon to be married, so it is reported in the Hub. His engagement has been announced to Miss Viola Davenport, a well-known singer, who has been studying to become an opera star.

**St. Louis, Mo.**—Under a reorganization D. Rees Davis has taken over the Houseman-Blake Automobile Co., and in future the firm will be known as the Davis-Blake Automobile Co. It will handle the Springfield and its offices will be at 5037 Delmar boulevard.

**Toledo, O.**—The Dusseau Motor Car Co., of Toledo, was incorporated this week, with an authorized capital stock of $30,000. The incorporators are S. V. Dusseau, W. G. Dusseau, F. X. Dusseau and A. J. Marleau. The concern will manufacture a motor car.

**Buffalo, N. Y.**—A recent addition to the force of the Buffalo Regal Auto Co. is J. S. Hodge, formerly with the manager of the Buffalo agency when the latter was territory superintendent in western New York for the Olds Motor Co. James B. Fiedler has become traveling salesman for western New York for the Buffalo Regal Auto Co.

**Cleveland, O.**—The Baker Motor Vehicle Co. has moved into its new building, in the most fashionable and exclusive part of Euclid avenue. The building is to be used as salesrooms, garage and repair shop. It is of fireproof construction and is built of stone and tapestry brick. The frontage on Euclid avenue is 160 feet and on East Seventy-first street 200 feet. The east half is occupied by the Standard Automobile Co., agent for the Packard, and the west half by the Baker company. The twin garages are in the rear and that of the Baker company will have facilities for charging sixty electrics at one time.

**St. Louis, Mo.**—The Fisk Rubber Co. has been installed in one of the most handsomely arranged houses in St. Louis at 3917 Olive street.

**Buffalo, N. Y.**—The Republic tire agency in Buffalo has moved from 46 West Chippewa street to a more desirable location at 908 Main street.

**Buffalo, N. Y.**—O. S. Johnson has been appointed to succeed R. H. Gillis as manager of the Buffalo agency of the Hartford Rubber Works Co.

**Milwaukee, Wis.**—The Milwaukee agency for the Stevens-Duryea has been moved from 482 Milwaukee street to the Cary building, Milwaukee and Oneida streets.

**Cincinnati, O.**—The Mimai Vulcanizing and Rubber Co., 331 and 333 East Fifth street, announces the increase of its capital stock and the enlargement of its plant. This company is agent for the Firestone tires.

**New London, Wis.**—G. E. Lutsey has been re-elected president of the New London Automobile Co. All other officers were re-elected at the annual meeting. It was decided to continue the agency for the Buick and do a general motor livery business.

**Cleveland, O.**—The Cleveland Automobile Spring Co. has been incorporated with a capital stock of $2,000 to manufacture motor car springs. The incorporators are Christian Girl, John B. Hull, Ernest W. Farr, C. E. Clemens, Edward H. Runde and William I. Lawyer.

**Hillsdale, Mich.**—C. E. Gordon, who managed the Western Malleable Steel Co., of Detroit and lately the Inland Steel Casting Co., of Terre Haute, Ind., has severed his connections with that corporation and will take a much-needed rest at his summer home on Lake James, Ind.

**Sandusky, O.**—Articles of incorporation have been filed for the Sandusky Auto Parts and Truck Co. The company has a capital stock of $150,000, and will erect a plant in the near future. Daniel E. Storms, former secretary of state in Indiana, and other Indianapolis capitalists are backing the project.

**Buffalo, N. Y.**—Articles of incorporation have been filed with the county clerk of Buffalo by the Clark Morton Co., capitalized at $50,000, to manufacture and deal in motor cars and to carry passengers. The directors are Stanley B. DeLong, John W. Van Allen and Henry J. Rente. Incorporation papers were also filed in Buffalo by the Regal Auto Co., with a capital of $10,000 and with Clarence E. Hancock, Wilfred W. Porter, Jr., Myron S. Melvin, Robert G. Boyd and Harry D. Van Brunt, all of Syracuse, as the directors.

**Cleveland, O.**—The B. F. Goodrich Rubber Co. opened new salesrooms in Cleveland last Saturday.

**Boston, Mass.**—The C. E. and H. J. Habich Co. has taken the agency for the Cole for New England, and opened a temporary salesroom at 185 Summer street.

**St. Louis, Mo.**—H. H. MacDonald, C. T. Schaefer and J. E. Ellison, formerly in the St. Louis Car Co., are now connected with the Embree-McLean Carriage Co., of St. Louis, in making and selling the Embree-McLean 35.

**Omaha, Neb.**—Work has been begun on the new $40,000 building of the Omaha branch of the Ford Motor Co. The structure is 66 by 132 feet and the entire front of two sides of the building both first and second stories, is entirely of plate glass.

## Recent Incorporations

**Buffalo, N. Y.**—Willows Garage Co., capital stock $20,000; incorporators, George R. Freeman, Charles L. Donohue, W. T. Belieu and Frank Freeman.

**Chicago**—Factory Auto Supply Co., capital stock $10,000; to deal in motor cars, motor cycles, accessories and supplies; incorporators, George W. Stephens, William A. Conover and Spencer Ward.

**Chicago**—Dominick Automobile Co., capital stock $10,000; motor car business, repair and machine shop; incorporators, William F. Dominick, George B. Wood and John W. Ross.

**Pittsburg, Pa.**—Liberty Auto Co., capital stock $5,000; incorporators, J. Joe Feicht, Lee A. Randall and W. J. Benyn.

**Camden, N. J.**—Sweeney Automobile Co., capital stock $10,000; to manufacture motor cars, motor cycles, etc.; incorporators, F. R. Hansell, John A. MacPeak and William F. Eidell.

**Scranton, Pa.**—Scranton Taxicab Co., capital stock $5,000; incorporator, A. Amerman.

**Dover, Del.**—Auto Central Co., capital stock $25,000; to conduct a general motor car business.

**Dover, Del.**—Neverslip Puncture-proof Tire Co., capital stock $200,000; to manufacture motor car tires, and automatic tires made up special letters patent; incorporators, Hood S. Shafer, H. S. Shafer, Jr., and Fred Wonderly.

**Newark, N. J.**—Taxicab Service Co., capital stock $50,000; to operate motor cars for rent and hire; incorporators, Francis Child, Jr., Margaret McCallig and Edgar Bross.

**Albany, N. Y.**—Glens Falls-Bolton Auto-Stage line, capital stock $5,000; to operate stage from Lake George; directors, Frank D. J. Ernest and Alta M. Miller.

**Albany, N. Y.**—Malley Motor Co., capital stock $500; to manufacture and repair motor vehicles, motor boats, etc.; incorporators, Thomas Malley and W. H. Pumphrey.

**Albany, N. Y.**—General Garage Co., capital stock $60,000; to deal in, rent and store motor cars, etc.; incorporators, Arthur H. Johnson, Earl E. Beyer and Harry A. Bemis.

**Kingston, N. Y.**—W. A. Wood Automobile Mfg. Co., capital stock $3,000,000; directors, William A. Wood, Charles W. Kanlerth, E. C. DeKay, Francis Fitch, Samuel S. Slater, Frederick E. Moscovics and Henry W. Johns.

**Utica, N. Y.**—Oneida Garage Co., capital stock $1,000; to conduct a garage, store and repair motor cars, etc.; incorporators, H. S. Powell and Hugh Follks.

# Announcements

The salesroom is on the first floor, while the stockroom, storeroom and repair shop are on the second.

**Omaha, Neb.**—The McIntyre Auto Co.'s garage is one of the new buildings to be completed on the row.

**New Smyrna, Fla.**—The Clouser Auto Co. has leased one of the best corners in the business section and is building a garage 50 by 100 feet.

**Sandusky, O.**—The Sandusky Auto Parts and Motor Truck Co. has been incorporated with a capital of $15,000 to manufacture parts and motor trucks, by James M. Wood, Daniel E. Stormes, Owen F. Snyder, B. M. Freeman and Simeon Nash.

**Boston, Mass.**—J. Ernest Quimby of Boston has joined the sales force of the E. R. Thomas Motor Branch Co. in Boston. Percy Musson, until recently foreman of a taxicab service department in Boston, has accepted the position as assistant superintendent of the service department of the E. R. Thomas Motor Branch Co., Boston, Mass.

**Reynolds, Ill.**—Emil Meurling, of Cable, Ill., has moved to Reynolds and opened a garage and repair shop.

**St. Louis, Mo.**—The Major Motor Car Co. has leased the garage at 1512-14 Locust street. The garage has been thoroughly remodeled.

**Cleveland, O.**—J. A. Boyd has organized the Commercial Auto Sales Co. for the sale of Chase delivery wagons and Gramm trucks in the Cleveland territory.

**St. Louis, Mo.**—The Benoist-Buel Co. has succeeded to the management of the Benoist Brothers Mfg. Co., and in a short time will move to 3923 Olive street.

**Milwaukee, Wis.**—The new Curtis garage, erected for the Curtis Auto Co., is about ready for occupancy. It is located on Eighth street, just south of Grand avenue.

**Boston, Mass.**—The Seamless Rubber Co. of New Haven, Conn., has opened a Boston salesroom at 685 Boylston street for the sale of the Bragg stitched tire and the Kantleak inner tubes.

**New York**—G. C. MacCullough has been made manager of the New York branch of the Pennsylvania Rubber Co. Mr. MacCullough formerly was associated with the Fletcher Hardware Co. of Detroit.

**Cleveland, O.**—J. H. Greenwald, agent for the Moon and Marmon cars in Cleveland, has moved his line into a new salesroom and garage. The showroom is 140 by 35 feet. The repair department is almost twice as large.

**New York**—The United States Light and Heating Co., 30 Church street, New York, announces the removal of its Chicago office from the Monadnock building to the People's Gas building, Michigan avenue and Adams street.

**Columbus, O.**—The Firestone Tire and Rubber Co., of Akron, O., has been authorized to transact business in Illinois, with a capital of $100,000. The Illinois office is located in Chicago. The capital of the Ohio concern is $4,000,000.

**Springfield, O.**—Papers were taken out recently by the Oscar Lear Automobile Co., of Springfield, increasing the authorized capital from $100,000 to $500,000. The increase was made to permit of enlargements and a reorganization.

**St. Louis, Mo.**—The St. Louis Overland Co. has been incorporated to deal in gasoline and electric vehicles. The capital stock is $20,000, of which one-half is paid. The incorporators are: E. W. Lee, W. R. Gentry, T. M. Dines and Howard W. Harrington, of St. Louis; T. B. Funk and W. M. Armour, of Dallas, Tex., and Jerome Harrington, of Watonga, Okla.

**Amesbury, Mass.**—The Biddle & Smart Co. is erecting a large addition to its present plant to meet the demand for bodies.

**Frankfort, Ky.**—The Acme Box and Shook Co., Kenton, has changed its name to the Acme Automobile Co. and increased its capital to $25,000.

**Boston, Mass.**—S. R. Bailey & Co. of Amesbury, Mass., manufacturer of the Bailey electric car, has opened a branch at 1024 Boylston street.

**Philadelphia, Pa.**—The Taylor Motor Distributing Co. is fitting up the entire ground floor of the big concrete building at 210-212 North Thirteenth street as its main headquarters.

**St. Louis, Mo.**—The Langan & Taylor Storage and Moving Co. has installed a motor car department at Garrison avenue and Olive street. A bonded storage and warehouse for motor cars also will be maintained.

**Cleveland, O.**—The Brown Auto Carriage Co., builder of bodies, moved to a new factory May 1. The new store has a floor area of 40,000 square feet. Tops, windshields and upholstery work are side lines of this concern.

**Cleveland, O.**—The Cleveland Taxicab Co. was incorporated recently with a capital stock of $100,000 to operate taxicabs. The incorporators are Charles S. Wachner, F. B. Williams, R. A. Wilbur, J. B. Graham and Benjamin A. Gage.

**Omaha, Neb.**—The Omaha Automobile Co. moved into its new garage at 1810 Farnam street last week. The building has a depth of 132 feet, the salesroom and garage being at the front end and the shop at the rear. The office is on a balcony over the main floor.

**Scranton, Pa.**—The Electric City Auto Co. has moved into its new garage at 218-220 Adams avenue. This company is the successor to Schulte & Dean, who were located on the corner of Washington avenue and Ash street. B. W. Schulte and H. N. Dean are still interested.

**Boston, Mass.**—W. T. Helfer, formerly branch manager of the Diamond Rubber Co., Boston, Mass., and recently sales manager of the Springfield Metal Body Co., Springfield, Mass., severs his connection with the latter concern to join the Racine Mfg. Co. of Racine, Wis., in which he has taken an interest.

**Nashville, Tenn.**—Howard, Cregor & Co., recently incorporated with a paid up capital stock of $50,000, is preparing to spread out in its operations. A branch house will be opened at Chattanooga at once with E. R. Howard in charge and sub-agencies will be established in the various smaller towns over middle Tennessee. The company handles the Hudson and the Chalmers.

## New Agencies

**Boston, Mass.**—Martell Motor Car Co., Firestone-Columbus.
**Washington, D. C.**—Paterson Sales Co., Paterson.
**Punxsutawney, Pa.**—Oakley Bean, Elmore.
**Baltimore, Md.**—H. H. Babcock Co., Babcock.
**Atlanta, Ga.**—J. P. Dick, American.
**Hattiesburg, Miss.**—Hattiesburg Auto Co., Maxwell and Columbia.
**Buffalo, N. Y.**—Lion Sales Co., Lion.
**Horicon, Wis.**—Louis Dietz, E-M-F and Flanders.
**Sturgeon Bay, Wis.**—Hembel Brothers, Maxwell.
**Superior, Wis.**—Superior Motor and Machine Works, Great Western and Cartercar.
**Ashland, Wis.**—F. P. McCarty, Regal.
**Seattle, Wash.**—Simplex.
**Canby, Ore.**—White & Scheer, Overland.
**Albany, Ore.**—Barrett Brothers, Overland.
**Seattle, Wash.**—Samuel Polacheck, Brush.
**Seattle, Wash.**—Metropolitan Motor Car Co., Lancia.
**Calgary, B. C.**—Rix & Co., Winton.
**Plattsburgh, N. Y.**—McPherson & Waterbury, Cole.
**Wilmington, Del.**—Thomas M. Brown, Cole.
**Savannah, Ga.**—Savannah Taxicab Co., Empire and Paige-Detroit.
**Savannah, Ga.**—Savannah Motor Car Co., Pierce-Arrow.
**Savannah, Ga.**—Carter, Logan & Brother, Locomobile.
**Savannah, Ga.**—Graham Automobile Co., Firestone-Columbus.
**Lafayette, Ind.**—James A. Hill, Halladay.
**Birmingham, La.**—Smith Auto Co., Halladay.
**Davenport, Ia.**—Iowa Auto and Tire Co., Thomas, Cadillac, Pierce-Arrow and Babcock electric.
**Davenport, Ia.**—H. W. Meier Co., Reo and Jackson.
**Des Moines, Ia.**—Bernhard & Turner, Columbus electric.
**Des Moines, Ia.**—Musgrave Auto Co., Black Crow.
**Des Moines, Ia.**—Cruzan, Inter-State.
**Des Moines, Ia.**—Buick Auto Co., Packard.
**Des Moines, Ia.**—Capital City Automobile Co., Columbia.
**New Orleans, La.**—Southern Vehicle & Auto Co., Lozier.
**Sioux City, Ia.**—Harding & Blenkinson, Everitt 30.

# News from the Motor Clubs

**NEW Club in Kansas**—The Winfield Automobile Club of Winfield, Kas., which is composed of about seventy members, has been organized with George Colthurst as president and J. W. Hanlon as secretary.

**Nebraska Club Chooses Talmadge**—The Grand Island Automobile Club of Grand Island, Neb., has reorganized with the following officers: President, L. M. Talmadge; vice-president, Jack Donald; secretary and treasurer, Roy Brininger. The club proposes to enter upon an active campaign for good roads.

**Interested in Signboarding**—The newly organized Indianapolis Auto and Aero Club, which has more than 200 members and is striving toward the 1,000 membership mark, is planning to place guide posts on all roads leading out of Indianapolis. These posts will be 9 feet high and of iron. They will be placed half way of the route to Chicago, and also on all other highways leading out of Indianapolis. The campaign for membership is being carried on in every section of Indiana.

**Members' Card Is a Bond**—The Omaha Automobile Club of Omaha, Neb., has made arrangements with the chief of police whereby any member arrested while motoring for alleged violation of the speed limit may give his card to the arresting officer in lieu of a bail bond and proceed on his way without interrupting his trip by going to jail. In return the club agrees to impose a fine of $25 on any member who is convicted of violating the speed laws, in addition to the fine imposed by the court.

**Another Wisconsin Recruit**—The Wisconsin State Automobile Association has been strengthened by the addition of another recently-organized club, the Oakfield Automobile Club. This organization is composed of owners at Oakfield, South Byron and Brownsville, in Fond du Lac county, Wis. The club has twenty-two charter members. The officers are: President, Dr. C. H. Moore; vice-president, W. C. Ehrhardt; second vice-president, Henry McCarty; secretary, W. E. Bristol; treasurer, George Hansen.

**Sentinel Cup**—The silver trophy donated by Charles F. Pfister, proprietor of the Milwaukee Sentinel, to the Wisconsin State Automobile Association, stands 14 inches high and is 18 inches wide at its greatest breadth. It is of solid silver, the bell being finished in gold. Beyond the usual lettering of the inscription there is no engraving on the cup, all figures being done in high bas-relief. The design was made with one idea—to typify strictly sane motoring. The Rambler has been selected as official pathfinder for the first annual reliability tour of the Wisconsin State A. A. for the Milwaukee Sentinel trophy and will leave Milwaukee this week to make the trip in schedule time of 5 days. The tour will start July 18 and end in the evening of July 23.

**Encourages Road Improvement**—The Bedford Automobile Club of Bedford, Ia., has adopted a practical and unique method of improving roads in that vicinity. The club has offered three prizes of $100, $60 and $40 for the best kept 5-mile stretches of road from the corporation of Bedford. The contest begins in May and closes in October.

**Now President Folsom**—The Lincoln Automobile Club of Lincoln, Neb., at its annual meeting elected the following officers: President, Morris W. Folsom; vice-president, Dr. Clyde W. Davis; secretary and treasurer, F. C. Fiske; members of the executive board, Dr. W. L. Dayton and I. F. Chapin.

**Schneider Made President**—The Fremont Automobile Club of Fremont, Neb., elected the following officers at its annual meeting: President, R. B. Schneider; vice-president, Dr. A. P. Overgard; secretary, Dr. F. E. Calkins; treasurer, F. H. Richards; board of control, Dr. George Haslam, Dan V. Stevens and C. H. Christenson.

**Baltimore Selects Date**—It is announced by the Automobile Club of Maryland that the date for the hill-climb will be June 11. Belvidere hill, extending from Roland avenue to the Falls road, had been selected for the event. This is one of the steepest hills outside the city limits and was used 2 years ago for a similar contest. An important matter discussed at the club meeting was that by President C. Howard Millikin, concerning the bail bond. He recommended that all club members and motor enthusiasts buy the bonds and be secure, as with a bond in his pocket the holder, if arrested for violating the new motor vehicle law, can effect immediate release should his hearing be postponed.

MILWAUKEE SENTINEL CUP

**Owego Chooses Officers**—The Owego Automobile Club, of Owego, N. Y., has elected the following officers: President, James S. Truman; vice-president, John M. Parker; secretary, William G. Ellis; treasurer, George Truman; directors, George F. Andrews, Dr. William L. Hill, Dr. S. Welles Thompson, Stuart Darrow and Arthur W. Bunzey.

**Elyria Reorganizes**—The Elyria Automobile Club, of Elyria, O., was reorganized at a meeting of about thirty owners by the election of the following officers: F. W. Colson, president; W. W. Auston, secretary, and C. H. Buttenbender, treasurer. The club will co-operate with the county commissioners to bring about the improvement of the highways in that section of the state.

**Frowns On Scorchers**—The Janesville Automobile Club, of Janesville, Wis., has elected the following officers: President, Dr. R. W. Edden; vice-president, Dr. R. R. Powell; secretary and treasurer, Earl Brown. The sentiment of the club was strongly expressed as being in favor of prosecuting all violators of the speed laws. Expulsion is the penalty placed upon members who persist in driving above the sped limit.

**Alton In Line**—The Alton Automobile Club, of Alton, Ill., is another organization that has gone in for good roads. The club at a recent meeting voluntarily arranged for a higher license fee, the surplus to be used for street and road improvements. A plan is well under way for the building of a brick road from Alton to St. Louis. The St. Louis club will aid in the work, if the scheme is carried through. This would connect the St. Louis county roads with those extending through the western part of Illinois.

**Punishing Joy-Riders**—It probably is significant that the first official act of Chief of Police William Young, who has succeeded Chief Creecy as head of the St. Louis police department, was to issue an order for a strenuous crusade against joy-riding. This followed closely upon the offer by Sam D. Capen, president of the St. Louis Automobile Club, of $100 as a reward for the arrest of a chaffeur who ran down and seriously injured a girl. The club has promised the chief that he shall have its moral assistance in every way possible to suppress reckless driving.